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STAGE SKILLS · STUDIO SMARTS

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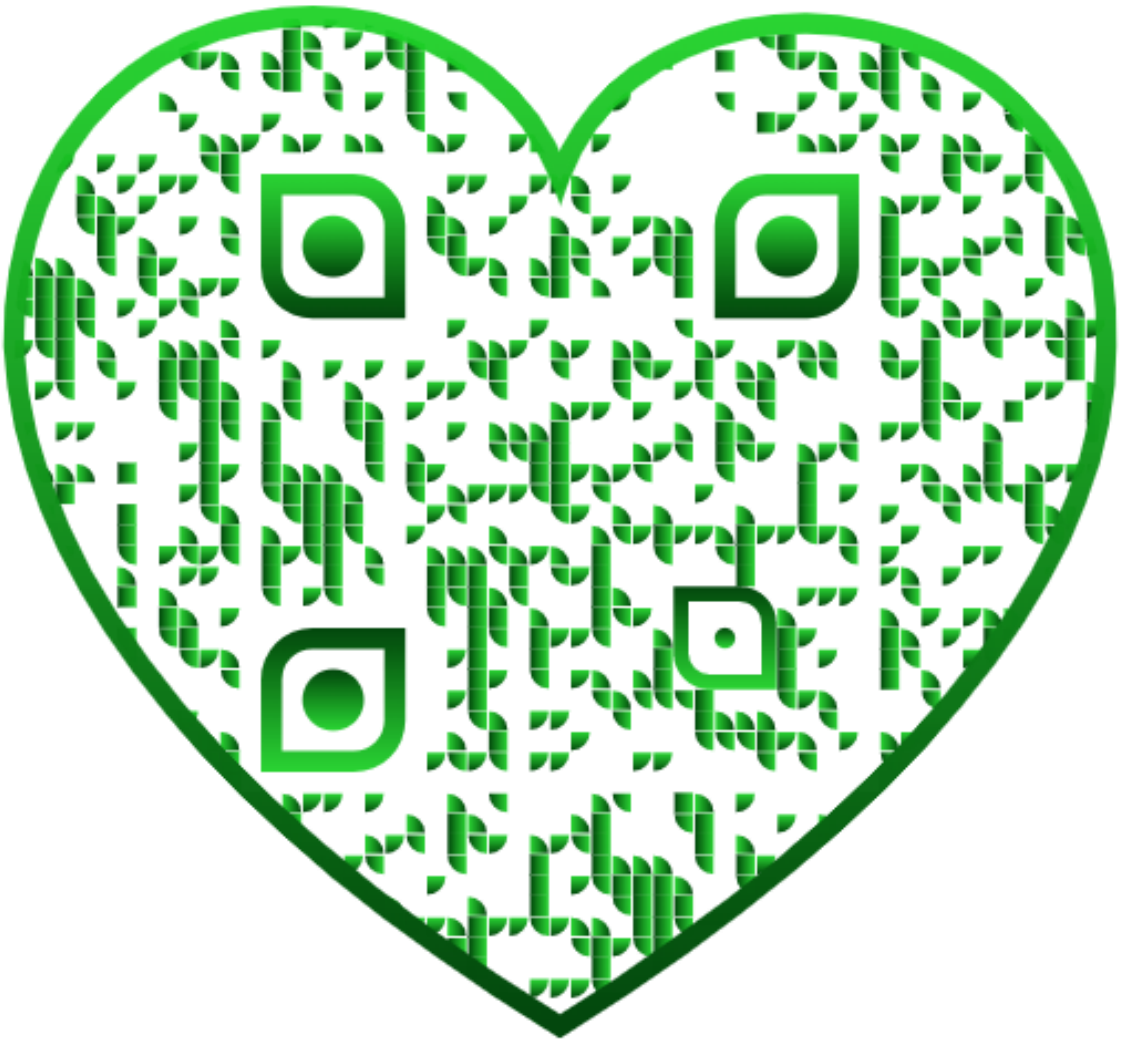

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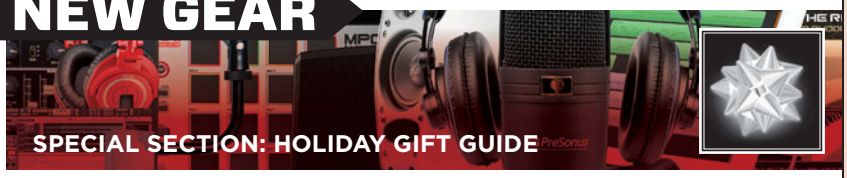

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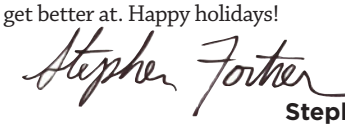
Editor's Note

The end of the year is always a time for reflection. In my case, the end of this year is even more so as it marks five years of acting as chief editor of the magazine I grew up reading. As early as fifth or sixth grade I was sneaking copies of *Keyboard* into study hall inside my binders and school books, and the couple of times I got busted, the teachers were surprised that the contraband wasn't a comic book, car magazine, or something else more appropriately adolescent. One of my perennial responses to "What do you want to be when you grow up?" was "An equipment tester for *Keyboard* magazine," and sometimes I'd write pretend *Keyboard* articles instead of doing my homework. In grad school, which is when my freelance career took off in earnest, I found myself writing real ones instead of working on my Ph.D. dissertation. Some things never change.

With a dream come true comes great responsibility, of course, so it's in the same spirit of reflection that I'd like to revisit a topic that arises every so often: What does it mean to be a keyboard player today? It's a hard question because the 12-note keyboard is the universal interface to so many different ways of making music. It crosses musical subcultures far more than, say, the electric guitar. Whether you're folkie or a metalhead, "I want to play guitar" pretty much means one thing. "I want to play keyboards" invites many more questions. Like Chick Corea? Like Jimmy Smith? Like Elton John? Like Stevie Wonder? Like Daft Punk with all those cool vocoder licks? Like prog gods, jam band burners, or cerebral electronic composers?

Most importantly, how should a magazine that takes as its name that very 12-note interface best serve all those possible aspirations and interests? One thing I'm sure of is that we'll always be a *players'* book: Like guitar mags and unlike other music-tech and recording mags, we have lessons with sheet music. Other than that, I'd really like to hear about how you make music and what you'd like to get better at. Happy holidays!



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Editor

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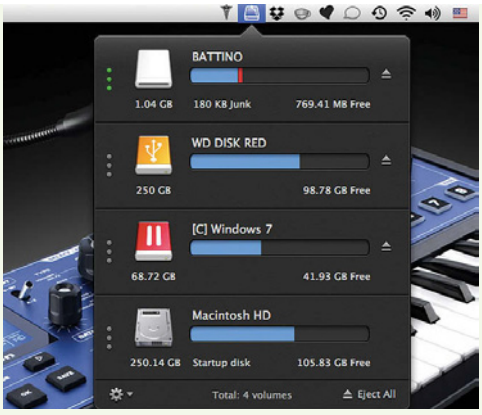
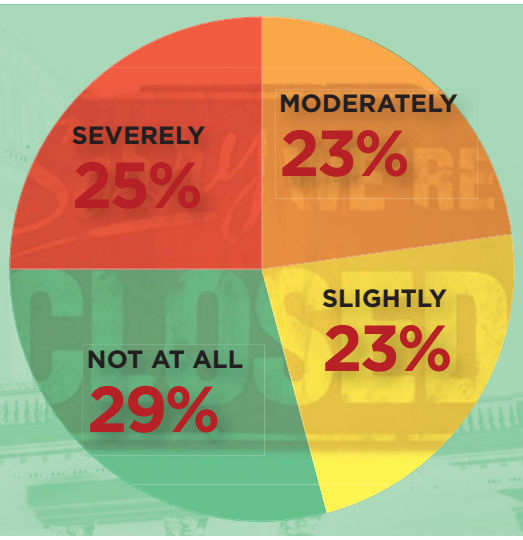
Key Secrets Mac Housekeeping

One of the annoyances when sharing files among Macs, PCs, and music gear is the invisible files that hitch a ride. These files often turn visible on the other platforms, where they can then cause problems. For example, if you add WAV files to an SD card on a Mac and then pop the card into an Akai MPX8 sample player (see our roundup on page 44), half the files will be unreadable. Sharing is smoother now that I use two free Mac programs to clean up the garbage. Keka (kekaosx.com) creates ZIP files that don't have Mac resource forks. CleanMyDrive (MacPaw.com; pictured) removes all kinds of junk and provides a handy eject menu for external drives. David Battino



THE Keyboard POLL

Q: HAS THE U.S. GOVERNMENT SHUTDOWN NEGATIVELY AFFECTED YOUR MUSICAL GIG?



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DEPT. OF CORRECTIONS

Just as we went to press, we uncovered a late-breaking clarification relevant to this issue's review of Logic Pro X (see page 50). As you'll read, reviewer John Krogh's copy started up in "new user" mode on his studio computer, in spite of his selecting the "experienced" option in an opening dialogue. As we saw that Advanced Tools were then hidden, we naturally inferred that new user mode was the cause of this. However, upon testing with a clean install on a new iMac at *Keyboard* central, we found that the new/experienced user dialogue only determines whether to point you to a "What's New" document and has no effect on whether Advanced Tools are shown or hidden. By default, they're shown, which is the correct behavior. Stephen Fortner

My First *Modular Synth*.

Erik Norlander

"The first time I played a modular synthesizer was in the early '90s," says analog wizard Erik Norlander, "and it wasn't just any synthesizer—it was Keith Emerson's legendary modular Moog. I was creating the sample ROM for the Alesis QS series, and obviously we needed some synth sounds in addition to the usual pianos, strings, and other mundane stuff. I thought, why not go for the best?" To sculpt his sound library, Norlander called up Emerson and asked to borrow the famous axe. "I had it in the studio for about a week, and it was hard to go back to 'normal' synthesizers after using this beauty," he recalls. Inspired by the Moog, Erik began a quest to find, build, and restore what would become his now-famous Wall of Doom modular Moog synth. "There has never been a better sounding synth than the Moog modular," he affirms, "and there probably never will be." Learn more about Erik and the Wall of Doom at eriknorlander.com. | Michael Gallant

NEW GEAR

Holiday Gift Guide

BY GINO ROBAIR

Arturia MicroBrute

WHAT Analog monosynth with sub-oscillator, sequencer, and Steiner-Parker multi-mode filter. **FOR** Analog leads and basses that don't sound like a Moog, Oberheim, or ARP clone. **$299 | arturia.com**

Korg Volca Series

WHAT Pocket-sized analog synths in three flavors: Keys (polysynth with sequencer and arpeggiator), Bass (bass synth with sequencer), and Beats (groovebox with added PCM sounds). **FOR** Big analog sounds from affordable synths that can go anywhere. **$182 each | $149 street | korg.com**

Moog Music MiniFoogers

WHAT Five stompboxes—Drive, Boost, Delay, Trem (tremolo), and Ring (ring modulator)—that are smaller and lower priced than full-sized Moogerfoogers. **FOR** Getting the CV-controllable Moog sound into your rig. **$149–$209 each | moogmusic.com**

Zoom H6

WHAT Six-track audio recorder with interchangeable mic capsules: X/Y, mid-side, shotgun, and XLR/TRS combo input. **FOR** Live recording, sound for DSLR videography, or a luxurious songwriter's sketchpad. **$499.99 list | $399.99 street | zoom-na.com**

Novation Launch-Key Mini and LaunchPad Mini

WHAT Miniature versions of Novation's USB-based keyboard and pad controllers. Both include Ableton Live Lite and work with Novation's free iOS apps. **FOR** DJs and keyboardists who make music on the go. **$99.99 street each | novationmusic.com**

Wrappable, stashable, and (mostly) affordable tech that musicians really want. Musicians: Leave the magazine open to this page where your loved ones will see it— taped to the bathroom mirror or on top of their car keys might work!

Audio-Technica ATH-M50RD

WHAT Closed, over-the-ear headphones for mixing, mastering, and critical listening. **FOR** Personal studio use and good old music enjoyment. **$199 | audio-technica.com**

PreSonus AudioBox Studio

WHAT Complete recording kit including a large-diaphragm mic, stereo headphones, and Studio One Artist 2 DAW. **FOR** The songwriter who wants pro features in a "my first studio" bundle. **$299.95 list | $199.99 street | presonus.com**

Radial Engineering Pro D2

WHAT Passive, stereo, direct box. Includes ground lift, –15dB pad, and 1/4" pass-through for your onstage amp. **FOR** Sending no-compromise sound quality from your keyboard rig to the house P.A. **$175 list | $149.99 street | radialeng.com**

Electro-Voice ZLX

WHAT Active loudspeaker with 12" or 15" woofer, time-aligned tweeter, and DSP. **FOR** Loud, clean sound in a lightweight system that scales to various venues. **$399–$499 street each | electrovoice.com**

MOTU MicroBook II

WHAT Super-compact 4 x 6 USB audio interface for computer or iPad. **FOR** Laptop keyboardists who need top-quality sound for virtual instruments. **$249 street | motu.com**

ART Auto-Tune Pre

WHAT Single-channel tube mic preamp with built-in Antares Auto-Tune processing. **FOR** Saving that vocal or instrumental performance that's perfect except for a couple of off notes. **$289 list | $229 street | artproaudio.com**

Neo Instruments Mini Vent

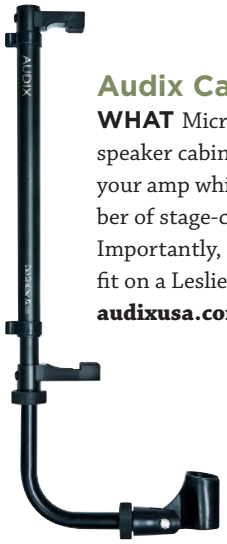
WHAT Compact version of the Ventilator rotary speaker simulator. Versions available for both keyboard and guitar. **FOR** No-frills but top-notch rotary simulation for clonewheel organs. **$459 list | $349 street | neo-instruments.de**

Cakewalk Sonar X3 Producer

WHAT Windows-only professional DAW with 23 virtual instruments, pitch correction, integrated channel strip, and tape emulation. **FOR** Uncompromising audio quality and speedy workflow for Windows-based recordists. **$599 list | $499 street | $149 upgrade | cakewalk.com**

Griffin StudioConnect

WHAT 30-pin iPad dock and stereo audio/MIDI interface that holds your tablet upright so you can see what you're doing. Lightning version available for newer iPads. **FOR** Making the iPad a central and professional component of your studio. **$149.99 list | $99.99 street | griffintechnology.com**

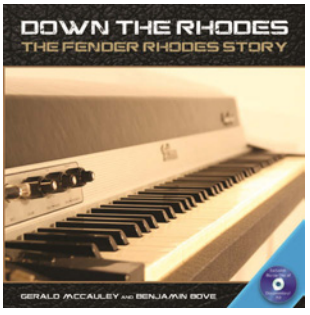


Audix CabGrabber XL

WHAT Microphone clamp for speaker cabinets. **FOR** Miking your amp while reducing the number of stage-cluttering mix stands. Importantly, the XL model will fit on a Leslie. **$59.95 street | audixusa.com**

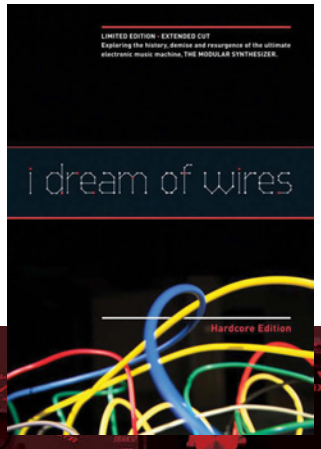
Down the Rhodes: The Fender Rhodes Story

WHAT Documentary film about the legendary electric piano told by a star-studded cast of artists. Includes full-color book and Blu-Ray disc. Also available as MP4 download and DVD. **FOR** The Fender Rhodes fan in your life. **$44.99 | fenderrhodesstory.com | halleonardbooks.com**



I Dream of Wires: Hardcore Edition

WHAT The extended four-hour cut of a documentary on the history of modular synthesis from Moog and Buchla to its present-day renaissance. **FOR** Fans of analog synths and vintage gear. **DVD: $30 | Blu-Ray: $35 | idreamofwires.org**



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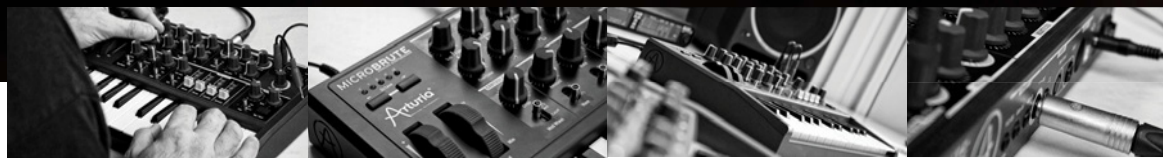

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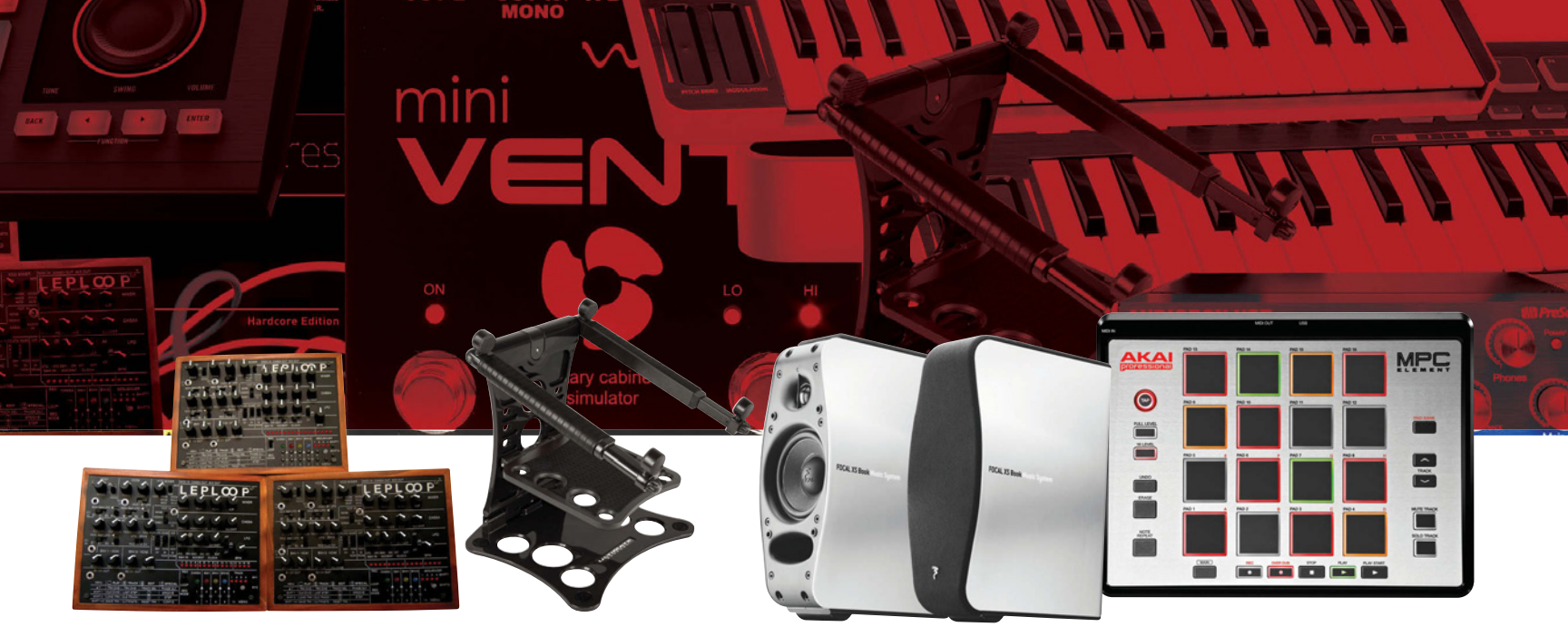

Nazzilla LepLoop

WHAT A dual-VCO analog synthesizer and drum machine with a four-track sequencer, 24dB low-pass filter, and MIDI. **FOR** Composers of old-school, beat-based synth music. **€599 | nazzilla.com**

Ultimate Support HyperStation QR

WHAT Laptop stand for your live rig, featuring the QuickRelease center post that provides several stand-mounting options. **FOR** Gigging musicians and DJs who need a sturdy home for a laptop onstage. **$199 list | $139.99 street | ultimatesupport.com**

Focal XS Book

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Akai MPC Element

WHAT Compact MPC-style USB control surface with pressure- and velocity-sensitive pads. Includes a 1GB sound library. **FOR** Producers and DJs who want the classic MPC interface in the thinnest and lightest possible package. **$249 list | $149 street | akaipro.com**

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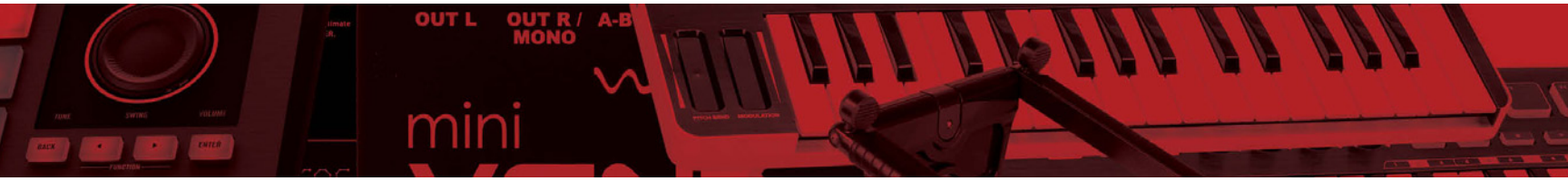

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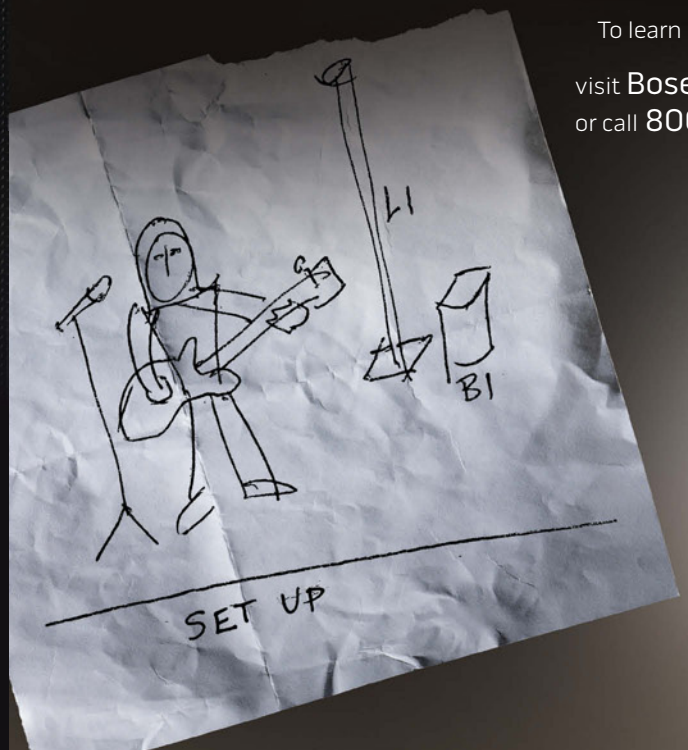

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CAFÉ TACVBA

MEME DEL REAL DÍAZ ON THE TECH BEHIND THE LATIN ROCK PHENOMENON

BY ROBBIE GENNET

SINCE THEIR DEBUT IN THE EARLY '90S, MEXICO'S CAFÉ TACVBA HAS TRANSFORMED what might be oversimplified as "Latin music" into something more weird and wonderful than any of their fans or peers could have imagined, opening the doors for an alternative Latin scene that has grown exponentially in the decades since. They've not only broken new ground but also created it, as you can hear on the synth-fueled *El objeto antes llamado disco*—the band's first new studio album in five years. Though the band is often tagged "Latin alternative rock," the record is a far more complex melange of modern pop, punk, electronica, and ambient mixed with a variety of Latin influences.

Since their founding, the band's core lineup has included keyboardist, guitarist, and songwriter Emmanuel "Meme" del Real Díaz, who moonlights as a producer and DJ. In fact, he recently co-produced the upcoming Juanes record with acclaimed producer Steve Lillywhite. Meme grew up in Mexico City with a father who played trumpet in an orchestra and kept the house buzzing with music as well. As a boy, Meme took piano lessons at a Yamaha kids' school in Mexico City, moving on to a piano academy where he studied classical music. His joining Café Tacvba happened as mundanely as it does with many bands taking shape. "They knew I played piano and asked me to join," he says.

From their first gigs at parties and clubs in 1989 they began gigging a few times a week and started touring outside Mexico City. "We were just having fun and trying to create something we hadn't heard before," says Meme. A producer with a friend at Warner Brothers connected them with the label and they started recording their debut album a few months later. They had underground success but the mainstream proved more elusive due to their unique sound. "When the first album came out, we did promotion and TV shows," states Meme. "We thought that our music was for everybody but some people didn't like it because it was different. It happens."

Their career got a boost with the 1996 release of their third album *Avalancha de Éxitos*, a collection of re-imagined cover songs that did well on the *Billboard* Latin charts and has since become one of their most enduring albums. Since then, the band has continued to defy expectations musically while racking up so many Grammy Awards that in 2008, they broke the record for the most Latin Grammys won in one night. Café Tacvba is living proof that creating original, genre-defying art can be a recipe for huge success. Of course, keyboards play a big role in shaping the band's eclectic style.

AN UNEXPECTED INFLUENCE

"Something that really marked me in the way that I understand keyboards was the *Switched-On Bach* album by Wendy Carlos. I heard it as a kid. When I eventually listened to the original classical versions, they sounded weird. I didn't understand that it *wasn't* all synthesizers at first!"

Meme in the studio with, clockwise from left: Analogue Systems modular synth, vintage ARP Quartet above Nord Stage 2, and Minimoog Voyager above vintage Sequential Circuits Prophet-5.

GREGORY ALLEN

Meme's gear evolution as a keyboard player has evolved with the band's diverse sound, though like most keyboardists, he started small. "My first keyboard was a Yamaha PF10," he says. "One of my father's keyboard players gave it to me. They were going to put it in the trash. I played with my brother and it was what I had when the band started. That's the keyboard we used on the first album. Then I got the Roland D-70, which was like going from the Earth to the Moon. I got into programming it and the second album *Re* was pretty much about that keyboard, plus a real piano, Rhodes, and Wurlitzer. We recorded in L.A. and in the studio we had tons of things to play with. But the synth sounds and programming were all the D-70."

He continues: "For *Avalancha*, we jumped to the Akai samplers and at the very beginning, we had drum machines: the Yamaha RX17, then the Roland R-8. Then we got the Akai S1000, then the 2000. On both I made my own samples and used found samples. From the R-8 I sampled each of the sounds into the Akai. I have family now but then I had time to get deep into it. I used the D-70 for a long time together with samplers live. Some of stuff we did on this record are acoustic instruments we don't normally bring on tour. I used samplers until computers made it easier to carry, travel, and sync and forget about all the MIDI connections. Every time we used to jump onstage to play, I always expected something bad to happen. Now everything is more controlled and safe. Back then, if the samplers went down, the band would be ready to play an acoustic song while I restarted and reloaded everything.

"Now I'm using the Nord Stage 2. Before that I used the Roland VR-700. But once I listened to the Stage 2, that was it. When I bought it two years ago, it was like switching to a Ferrari—amazing! For what I'm using, I don't need more than the basic sounds. In the show, I use the Rhodes, Wurly, pianos, some synths and pads, Clavinet, and harpsichord. I like the action on the Nord better than most of the keyboards out there."

For the most recent album, the band recorded in a live situation for the first time, tracking in four different cities and opening the doors for people to watch. They did one or two passes of each song over eight sessions and comped together the final takes for the album. And at their current stature, Meme could afford to re-imagine his rig once again. "On this album I used more synths than I've been carrying," he says. "A Prophet-5, Minimoog Voyager, and an ARP Quartet, plus an Analogue Systems modular." He hopes to bring out some or all of those keyboards on the road, but that's not the biggest challenge of touring. "It's hard to make a set list when you have a new album," he says. "Most of the people want to listen to the familiar songs every time. However, we enjoy it because when you play, the energy of the people comes back at you."

MEME ON LATIN ARTISTS YOU SHOULD KNOW

"In Mexico there's an instrumental band called Austin TV. They're amazing and they've always played in costume—you never see their faces. The keyboard player plays very simply but she's great. There is a young Chilean band called Dënver that I like as well. From Chile there's this guy called Gepe; his last album had incredible songs. He has brilliant ideas and he uses lots of keyboards and sequencers."

Aron Magner

LIVE JAMS MEET EDM

BY ROBBIE GENNET

ARON MAGNER MAY BE BEST KNOWN AS ONE QUARTER OF PHILADELPHIA JAM band the Disco Biscuits, but his burgeoning fan base has elevated his side project Conspirator to headlining status at festivals around the country. Magner's keyboard wizardry has melded with the electronic dance movement to create a hybrid sound that just might herald the future of EDM. He should know—the Camp Bisco music festival that the Disco Biscuits started over a decade ago draws jam band and EDM fans in equal measure. Here, he reflects on the cultural crossover of the two scenes, and details how Conspirator and the Biscuits combine live and programmed elements.

How did Conspirator start and how has it morphed from its original mission?
I wanted to dive deeper into programmed electronic music and hooked up with a producer named DJ Omen for a bunch of sessions. We quickly brought (Disco Biscuits bassist) Marc Brownstein into the fold and Conspirator was born. The live show was just keys, bass, and CDJs. The band then became just Marc playing and me triggering tracks off the computer. Marc and I quickly realized that Conspirator was better with more musicians, so we've since had many world-class musicians sit in with us for the shows we play over the course of a year.

Conspirator seems like a live band by nature. How do you approach making a studio album?
We've taken the live model of Conspirator playing over our pre-produced tracks into the studio. That fed back and affected the live performance as well. We took each drum sample and assigned it to different MIDI channels for [drummer] K.J. Sawka to trigger, so there are no more double drums. I routed all of my synths through a compressor that has a sidechain input assigned to K.J.'s kick. Most importantly, we tightened up the set with various dummy clips that not only send program changes for K.J.'s drums or for our ear mixes, but can trigger specific things like filter tweaks so no one has to give up a hand to turn a knob.

Do the computer tracks limit your live performance possibilities?
It's a constant battle of anticipating what the limitation is going to be and figuring out how to circumvent it. We're becoming more aware of playing along with the computer so we'll now do specific mixes to allow flexibility onstage for key changes or improvising. Our musical backgrounds make us want to find points in every track to open up and jam. Looping four- or eight-bar segments only goes so far. While it would be easiest to mix all the 128 bpm tracks into each other for one segment of the show, then all the 140 bpm tracks, and so on, we enjoy finding creative ways to get from 96 to 128 or 175 down to 90—and in different keys!

How do you use Ableton in live performance?
In the Disco Biscuits I use it to trigger song-specific loops or samples, but for the most part, I have a slew of soft synths across many channels, and that enables me to live-loop in an improv setting. With the Biscuits, my computer is slaved to [Biscuits drummer] Allen Aucoin's. He's the only one that has the click in his ear so he can tap tempo on his Akai APC at any point and slave the full band to his click. At this point, I can layer as many elements as I have loaded into Ableton channels—arpeggios, pads, leads. Massive, Sylenth, and Gladiator are probably my main three soft synths. I use CamelSpace and Dr. Device on the return sends, which lets me add more on-the-go character.

In Conspirator, my Ableton rig is configured differently, more like a DJ's. I have mirrored A/B decks juxtaposed for each of the different tempo ranges so I can mix appropriately. I only use the computer to trigger the "backing" audio mixes, though I'm tempted to use a second computer solely to play the patches that were written for the specific tracks.

Have we blurred the line between keyboard player and DJ? If so, how?
We've certainly blurred the line between *producer* and DJ, and most keyboard players with synthesis skills are also producers, so by the transitive property, I guess that makes sense. It also works the opposite way. So many DJs grew restless of not having original content and got into the production game, thus learning synthesis and some basic keyboard skills. I can't believe I'm saying this, but for some producers a lack of knowledge can actually work in their favor, as they're only listening for what sounds good, not what "should" work according to music theory.

How do you challenge yourself on keys? Do you rehearse and if so, what can you share with readers about your process/inspiration/technique?
I warm up before shows with a few scales or exercises. Every few years I remember that my roots are in jazz and I begin taking lessons again and that gets me back in the game. But alas, the road always calls and I get sucked into balancing the life of a touring musician, producer, husband, and father.

How do you define a musical instrument in the age of Ableton and Reason—or a musician, for that matter?
There are ridiculously innovative musical controllers out now that are redefining musicians' approach to conveying emotion through sound. Take for example the Continuum Fingerboard, the Reactable, or the Eigenharp—they're what are pushing the boundaries of what a musical instrument is. Software programs are merely the catalysts. Taken to the extreme, you have artists like AraabMusik or Jeremy Ellis who seem to physically *play* the computer and controller. Who cares what their knowledge of musical theory is? They're creating music in absolutely unique ways. Is all this partial to electronic music? Perhaps.

ARON'S DISCO BISCUITS RIG

Clockwise from top: Roland V-Synth GT with Boss DD-20 delay pedal above Moog Little Phatty and Novation X-Station; Apple MacBook Pro running Ableton Live; Akai APC40 and Access Virus TI Polar above KeyB Solo organ above Yamaha Motif ES8; Boss DD-5 delay pedal; Roland JP-8000; Mackie VLZ3 mixer.

Are trends such as dubstep worthy of incorporation, or fads to be avoided?

I think it took a couple of years for some musicality and variation to find its way into the style. Or at least it took *me* a couple of years to wrap my head around the artists who push the boundaries of the genre and write absolute bangers. I was stubborn and when a genre can take the scene by storm you can't be the last man standing—so I wrote my first dubstep track, "Last Man Standing." Now, as with most electronic genres, the style warps and evolves and different instrumentation comes in. Check out Nero, Porter Robinson, Feed Me, or Dillon Francis, just to name a few. All are masters of incredible sound design

How has your Camp Bisco music festival bridged the live and electronic music scenes?

The first years were mainly bands with electronic influences, with DJs sprinkled in as in-between or late night sets. That was in 2000 when electric guitar was king. Now, the biggest DJs in the country are headlining the main stages. We've introduced our fans to so many varied acts over the years and in return, their explorations have exposed us to many more. Perhaps the appreciation of both live and electronic "pre-produced" music has finally merged. ♫

HIP FOR THE HOLIDAYS

We polled our contributors and readers about what music puts them in the holiday spirit and leaves the cheese on the buffet table where it belongs.

VINCE GUARALDI
A Charlie Brown Christmas

The gold standard of holiday piano music, both for listening and playing. My songbook lives on the piano all season, and the ubiquity of "Linus and Lucy" aside, I never get tired of exploring the harmonic motion in originals like "Christmas is Coming," "Christmastime is Here," and his reinventions of classics like "Chestnuts" and "The Little Drummer Boy." Besides, go listen to "Your Gold Teeth II" by Steely Dan and then try to tell me they didn't seriously check out Vince Guaraldi. Who are these children who scheme and run wild? The *Peanuts* gang, of course! Brilliance defined. | vinceguaraldi.com | STEPHEN FORTNER

MATISYAHU
"Happy Hanukkah" (single)

Acclaimed Hasidic reggae musician and rapper Matisyahu released this infectious Hanukkah track in 2012 to benefit victims of Hurricane Sandy. A year later it still delivers deep grooves. | matisyahuworld.com | JON REGEN

KENNY ELLIS
Hanukkah Swings

Los Angeles based cantor Kenny Ellis channels the swing and swagger of Holiday albums past with this 2005 release in both English and Hebrew, featuring great piano work by Stu Goldberg. Key track: "Swingin' Dreidel." | kennyellis.com | JON REGEN

THE BLIND BOYS OF ALABAMA
Go Tell It on the Mountain

Featuring collaborations between the legendary gospel singers and such artists as Solomon Burke, Tom Waits, Michael Franti, Mavis Staples, and George Clinton, this record won the Grammy for Best Traditional Gospel Soul Album in 2004. High quality indeed! | blindboys.com | ROBERT GRAHM, via Facebook

TRANS-SIBERIAN ORCHESTRA
The Christmas Trilogy

Any of the Christmas albums by the Trans-Siberian Orchestra are wonderful—the song "Wizards in Winter" in particular. | trans-siberian.com | JIM ESHLEMAN, via Facebook

GODS OF FIRE
Hanukkah Gone Metal

Who says the holidays have to put you to sleep? This 2009 release tells Hanukkah history against a sonic backdrop of raging metal guitars and soaring prog keyboards. Key track: "The Quest for the Latke Oil." | godsoffire.bandcamp.com | JON REGEN

VARIOUS ARTISTS
Ultra Lounge: Christmas Cocktails

Now comprising three volumes, this compilation of pops, swing, and jazz artists performing holiday standards will do even more for your retro cred than stirring your martini with a traditional portion of vermouth. Jimmy McGriff kicks a swingin' B-3 medley of "Santa Claus is Coming to Town" and "White Christmas." Another high point: Kay Starr singing "Man with the Bag." Great for parties. | NORA CHARLES

RICK WAKEMAN
Christmas Variations

This, and also Jon Anderson's *Three Ships*—obviously a vocal album but with lots of keyboards and a mix of traditional carols and originals. I also used to have Christmas albums from Oscar Peterson and Dave Brubeck that were great. | rwcc.com | DANIEL HESLOP, via Facebook

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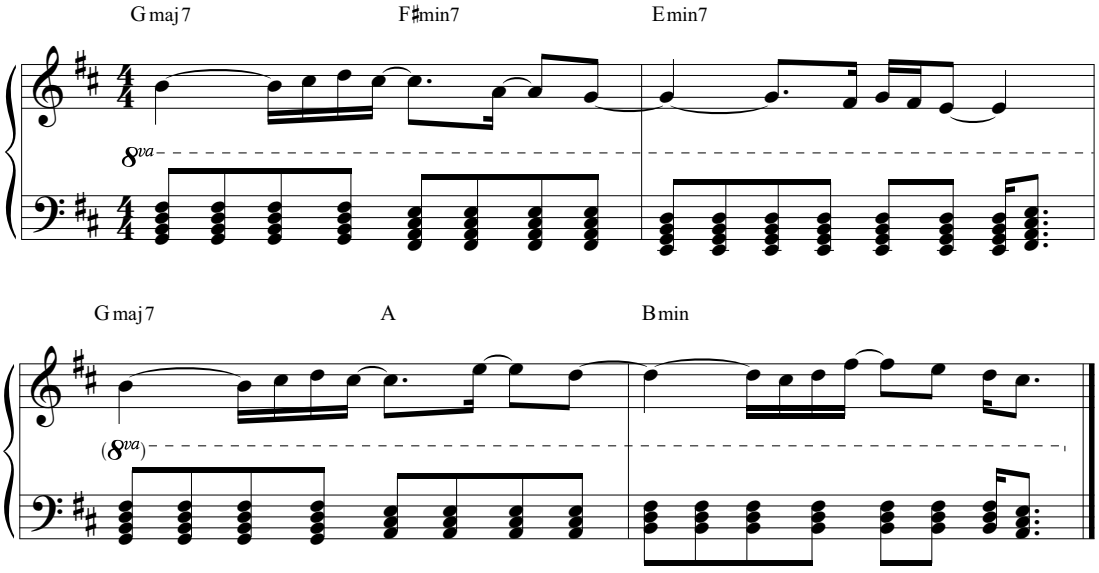
Improvisation
FOR THE POP SONGWRITER

BY SCOTT CHASOLEN

THE INTERSECTION OF POP SONGWRITING AND IMPROVISATION IS A POWERFUL PLACE TO EXPLORE—ONE IS QUITE necessarily structured, the other seeks to break out of structures or at least push their limits. Combining these two disciplines allows my pop and jazz personalities to coexist in a sort of schizophrenic balance. It can be challenging to bring songwriting and improvisation together, so here are a few ideas to get you going in the right direction.

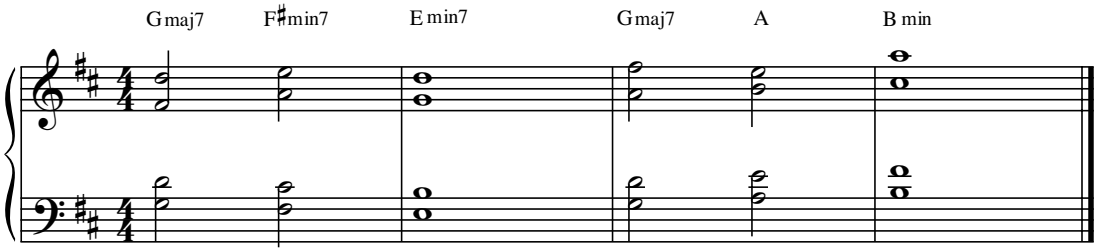
Ex. 1.



1. Planting Seeds

Every song needs a starting point. Once you establish a solid foundation, you have unlimited potential for development. **Ex. 1** is a four-bar chord progression and melody in the key of *B* minor. This would be the verse section of a song, intended for singing with lyrics. You can use this same chord progression as a vamp to improvise over in a solo or a group jam.

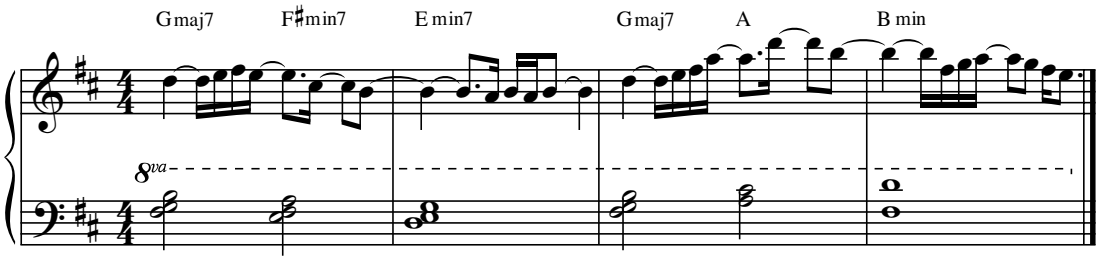
Ex. 2.



2. Leaving Space

Sometimes as players we forget one of the most important concepts in music: leaving *space*. (Otherwise known as "When *not* to throw everything we've learned into the first two bars of a solo!") Allowing your improvisations to develop slowly will leave you more room to build them towards excitement and craziness later on. **Ex. 2** illustrates two-handed "open" voicings that will set the pace for what's yet to come.

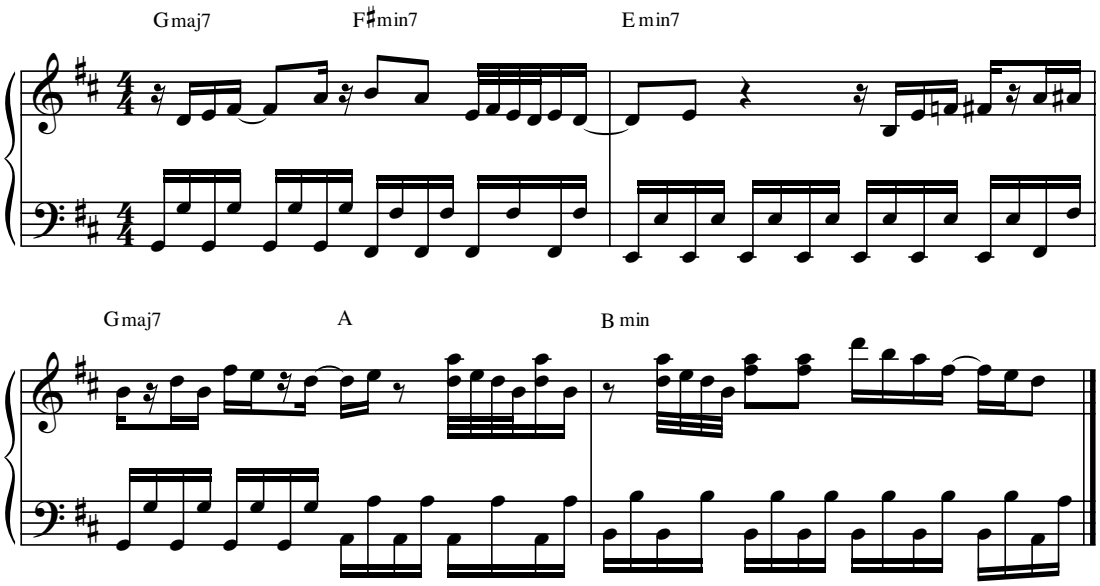
Ex. 3.



3. Melodic References

Don't be shy about referencing a song's melody in your solo. An effective way to tie it in to your improvisation is to play the melody's original rhythms but change the notes, as seen in **Ex. 3**. This example also employs closed voicings in the left hand for variety.

Ex. 4.



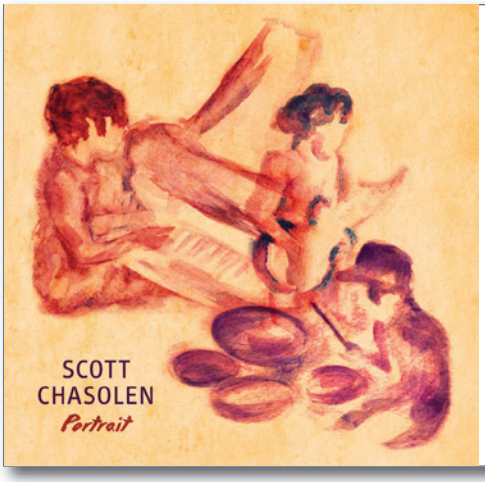
4. Left-Hand Variations

How you accompany yourself with your left hand can really change the feel of a solo. Alternating octaves on the root of each chord like those in **Ex. 4** create a solid undercurrent beneath the right hand melodic explorations based on the *B* blues scale.

Ex. 5.

5. Bringing It Home

The repetitive, right hand *ostinato* pattern in **Ex. 5** creates energy and tension while the chords change with syncopated accents beneath it. The arc of your improvisation should lead to this conclusive point in the journey, where the final crushing punch of your solo is the climactic moment everyone is waiting for!



Practice Tip

"Years of studying jazz and as well as pop songwriters helped me develop these concepts. Remember that the more music you listen to, the more influences you can draw from," says **Scott Chasolen**, acclaimed for his work in instrumental group Ulu, Pink Floyd tribute band the Machine, and jazz-pop of his solo project SC3. Chasolen's album *Portrait* blends songwriting and improvisational elements. For more info visit scottchasolen.com.

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Hear Scott play audio examples from this lesson online.

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— Chuck Leavell

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YAMAHA

Syncopated Funk Comping

BY JEFF LORBER

AS A MEMBER OF THE RHYTHM SECTION, ONE OF THE KEYBOARD PLAYER'S roles main roles is to play supporting harmonic and rhythmic accompaniment that propels the music forward. This is especially true of funk music. While the rhythmic drive for many funk artists often comes primarily from guitar parts, keyboards can be an essential or even primary element that creates the funk. The goal of syncopated funk is a synergy of all the instruments in the mix, including syncopation of the *melody*.

Let's look at some examples of funk grooves and comping.

Ex. 1.

1. Funky Support

Ex. 1 is based on a repeating rhythm of two eighth-notes followed by an accent on the second sixteenth-note of the second beat. The tempo is around 108 bpm. The contrast between the "straight eighths" and the syncopated sixteenth-notes help make this a funky groove. The range of the part traverses around a fifth above and below middle *C*—an excellent range for comping. This area will most likely stay out of the way of the bass and whatever is ultimately added on top.

Ex. 2.

2. Slower Syncopations

Ex. 2 is at the much slower tempo of 84 bpm. There's a lot of syncopation—the snare drum plays on the "and" of beat 2 and then on the "four" of each bar. At a slower tempo such as this, there's more space to enjoy the syncopations that you can create. The first syncopation is the "delayed" hit on the second sixteenth-note of beat one. The patterns on beats 2 and 3 are less syncopated, but the chords on the second sixteenth-note of the fourth beat and then the 16th note *anticipations* of the second bar provide contrast. For me, that's what makes something funky: the combination of "on the beat" rhythms and the syncopated ones.

Ex. 3.

3. Simmering Sixteenths

Ex. 3 is based on a recurring double sixteenth-note chordal pattern heard on beats 1 and 3 of each bar, and syncopations on the *second* sixteenth-note of beat 2. It's similar to what's used in my song "Rain Dance," which has been sampled by a number of rap artists and has a funky R&B feel. The fact that this progression doesn't really resolve anywhere except perhaps on the last bar gives it additional energy and tension.

Ex. 4.

4. Drum-Like Funk

Ex. 4 is a comping pattern for a "house groove." These type of grooves are very popular today in pop music and are even starting to be heard in some contemporary jazz pieces as well. This example is similar to my song "Haciencda." It illustrates an effective device in creating funky keyboard parts, which is *counterpoint* between the left and right hands. Some of the parts are similar to drumming. You can actually use drum rudiment patterns like "paradiddles" to come up with effective parts that use both hands.

Contrast Ratio

"What makes these kinds of off-beat hits effective is the contrast between the syncopation and the straighter rhythm that supports it. If everybody in the band is playing syncopation, it's not as effective as when that contrast exists," says acclaimed fusion keyboardist **Jeff Lorber**. His latest release is entitled *Hacienda*. Find out more at lorber.com.

SOUNDCLOUD

Hear Jeff play audio examples from this lesson.

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VINCENT IOIA

Building a Better Groove

BY RICKY PETERSON

WHETHER I'M IN THE STUDIO WORKING AND PRODUCING DIFFERENT PROJECTS, or I'm playing live on stages around the world, for me everything starts with the groove. Often times, you can get things cooking by simply laying down a few well-constructed measures of music. Let's take four bars and build a bed of some musical funk in the key of *E* minor. Remember—if it don't groove, how you gonna feel anything?

Think Like an Arranger

"Remember that just because you can record 100 tracks doesn't mean you should. Make every part you add count and find its own perfect place in the mix," says **Ricky Peterson**. Best known for his work with David Sanborn, Bonnie Raitt, and Stevie Nicks, Peterson is currently at work on a myriad of new projects, including touring and recording with guitarist Robben Ford, producing singer Rockie Robbins, and finishing his fifth solo album. Find out more at rickyp.com.

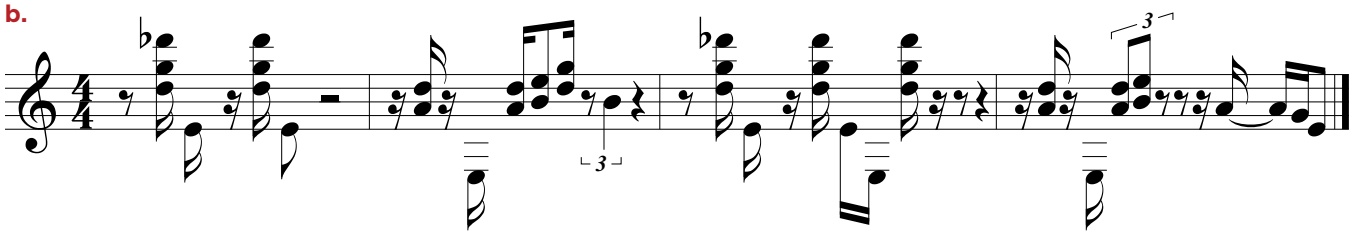
Ex. 1.

1. Groove Bass-ics

For me, the bass line always starts the groove on the "one." I prefer a little busier pick bass foundation, like this part shown in **Ex. 1**.

Ex. 2a.

b.



2. Rhodes and Clav

Next come the Rhodes and Clav parts, seen in **Ex. 2a** and **2b**. I'll approach the Rhodes pad less rhythmically, playing half- and whole-notes to lay down a solid musical bed. The Clav then comes in with more of a rhythmic feel. I always approach playing Clavinet like a guitarist might, playing slightly more counter-rhythms than I might on another instrument.

Ex. 3a.

b.

3. Strings and Horns

Let's continue stacking our groove by adding strings and horns to the mix, as seen in **Ex. 3a** and **3b**. Strings are usually the least "busy" of all the instruments. I often play longer notes and use them as the glue that binds the track together. Next, the horns play more melody and less rhythm because (for instance) the organ will be playing a solo.

Ex. 4.

4. Organ Solos

When the organ is soloing as in **Ex. 4**, I usually approach it with fewer notes at first, building it as the groove itself develops. I often employ a behind-the-beat feel when playing organ, as many times that's the kind of vibe I am going for.

SOUNDCLOUD

Hear Ricky play exclusive audio examples from this lesson.

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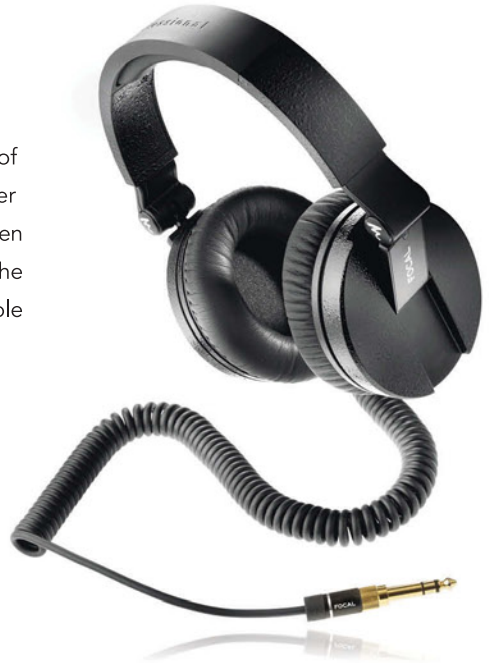

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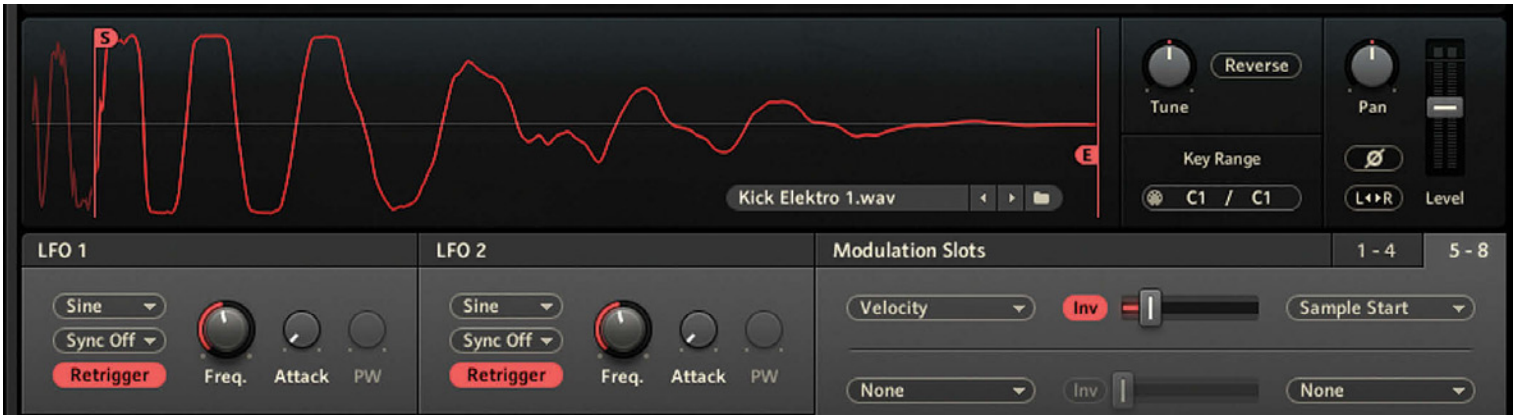

Fig. 1. Native Instruments Battery is set up with the sample start point offset into the beginning of the sample, with negative velocity to move it forward for louder hits.

Making Electronic Drums Expressive

BY CRAIG ANDERTON

SEQUENCED ELECTRONIC DRUMS DON'T HAVE A REPUTATION FOR EXPRES- siveness. Although sampled acoustic drums have made great strides thanks to multisampling and careful programming, electronically-generated sounds—particularly from sources like vintage drum machines—are pretty much "sample and forget it." However, it doesn't have to be that way, as there are plenty of options for making electronic drums more expressive.

Modulate the sample start point. To add more dynamics, set a sample start point for the sound you want at the lowest velocity, then assign modulation (usually negative) so that higher velocities move the sample start time earlier (see **Figure 1**). Increasing velocity not only increases the level, but also brings in more of the attack to add intensity. Unlike multisampled drums, this creates a smooth change that doesn't sound "switched."

Dynamic detuning. Pitch envelopes can accentuate attacks and add more of an acoustic drum vibe because when a drum stick first hits a drum skin, the increased tension raises pitch slightly. Use no envelope attack or sustain. I prefer a short decay and release, so that the envelope is in play whether I keep my finger on a pad (or hold down a key) or just do a quick, triggering hit. Modulate the envelope amplitude with velocity so that higher velocities create more pitch modulation. You can get away with high modulation amounts if the decay is really short (a favorite Kraftwerk technique on their drum sounds). Longer decays give the old Simmons "dooo" decay that was so popular when disco was king and dinosaurs ruled the earth. (Note: This technique is used in most of the downloadable samples.)

Static detuning also has uses, although these relate more to variety than expressiveness. For example, tuning a cymbal down an octave or more, combined with a little lowpass filtering to reduce any grunge, can make an effective pseudo-gong. Tuning acoustic drum samples up a few semitones can impart more of an analog drum sound, and toms lend themselves to detuning if you want to create additional toms. I like tuning a copied tom way down to create an extra "sub" floor tom.

Create your own "analog" drum sound samples. This requires a digital audio editing program with a pencil tool and the ability to generate waveforms and fades (*e.g.*, Sony Sound Forge and Steinberg WaveLab). Ancient analog drums were often based on a "twin-tee" circuit architecture—basically a damped resonantor which when excited, generated a sine wave. Triggering it created an attack, but often a somewhat muted one.

You can model these sounds easily. Create a sine (or other) wave at the desired frequency, then add a decay. Now take the pencil tool and

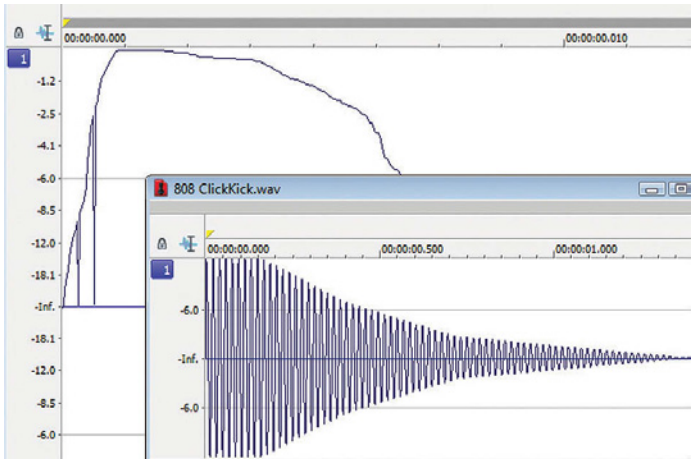

Fig. 2. The foreground screen shows the kick drum sample; the background shows how the first half-cycle has been redrawn to distort it, with a few spikes added to give a clicky attack.

Fig. 3. MOTU Digital Performer's Live Room G allows tailoring the virtual mic placement in numerous ways, as well as adding pre-delay, changing cabinets, adding EQ, and more.

mess up the attack by drawing in some transients or distorting the waveform (see **Figure 2**). This will give a strong clicky attack. When used as a sound source in a sampler, you can then process it with the filter and pitch envelope techniques mentioned previously. Another option is to create a sample with a long decay, then use an amplitude envelope to control the decay time.

Layering click samples over specific velocity ranges. Create a click sound you can layer with a drum (*e.g.*, trim just the initial click/attack part of a drum sample, or transpose a wood block sound upward). Restrict its response to a specific velocity range, such as 125 to 127. One application is adding expressiveness to a "four on the floor" kick drum by emphasizing a measure's first kick beat with the click. This allows keeping the other three beats at near maximum level, but the initial one will stand out more. This click can also emphasize snare drum and other hits.

Overdrive. Using amp simulations in parallel with drums is one of my secret weapons (okay, so it's not much of a secret anymore). Although you can get some appropriately crude industrial sounds simply by running drums through distortion, they become far more expressive if you vary the overdrive input, particularly with individual drums (being monophonic sound sources, there's no intermodulation distortion as associated with a polyphonic source). This is particularly effective with kick, toms, and snare; hats and cymbals don't work as well. For example, increase drive to underline a crescendo, or behind an instrumental solo before the vocal comes back in.

Virtual room mics. This technique adds an organic quality to electronic drums. Some amp sims (*e.g.*, Native Instruments' Guitar Rig and MOTU's Digital Performer; see **Figure 3**) include "room mics" for miking the amp sim's cabinet. Choose a clean amp and bypass the cabinet if you want full fidelity (in some cases, though, the cab can add a useful vibe when placed in parallel), and *voilà*: instant room. Lacking this option, create multiple send buses with paralleled short delays set to prime numbers (*e.g.*, 13, 17, 19, and 23 milliseconds) and mix in some of these virtual room reflections.

Parallel compression. Once rare, this is becoming more common as plug-ins include wet/dry blend controls (see **Figure 4**). The concept is simple: Retain dynamics from the dry sound, while filling in "body" with the compressed sound.

Modulation wheel/pedal hi-hat control. The best way to humanize a drum sound is to involve a human. For hi-hat parts, I often use only the open hi-hat sound, and control the decay with an amplitude envelope. Set attack, sustain, and release to zero, with a pedal or modulation wheel controlling decay. This makes it easy to change the hi-hat sound from open to tightly percussive—and some of the in-between sounds are pretty cool, too. ♫

Fig. 4. Cakewalk Sonar X3's PC4K S-Type Bus Compressor incorporates a wet/dry control (lower right) to facilitate parallel compression.

SOUNDCLOUD

Download virtual analog drum sounds (TuffKick, 808ClickKick, FloorTom, HighTom, Noise Snare, Snare, SciFiCymbal, and Woodblock) synthesized within Sony Sound Forge. All samples are at 24-bit/44.1kHz resolution, available in stereo and mono versions, and licensed to you by Craig Anderton for any use other than inclusion in a sample library.

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Jack Hotop, keyboardist and longtime sound designer at Korg.

THE ART OF SYNTH SOLOING

Insights From a Master Programmer

BY JERRY KOVARSKY

IN MY YEARS WORKING FOR KORG, I SPENT INNUMERABLE HOURS LISTENING to sounds, tweaking them, and helping decide which ones would go into a product. The person I sat with the most? Master programmer Jack Hotop, a Korg fixture for over 30 years. Jack has been part of the team of sound designers who worked on synths such as the Poly-800, the M1, the WaveStation, the Triton series, and both the OASYS and it's step-brethren the Kronos. More recently he completed work on the Krome and Kross workstations. Many things I've been teaching come from studying the work of other programmers, and Jack and the whole Korg team have taught me so much. So he has been part of this column from the beginning, and I was long overdue to get him to share his approach to lead synth sound design.

Smooth Singing Leads

Many programmers build a bit of punch into the attack of the amp envelope by creating a strong attack segment that holds for a little bit, and then comes down to a lower sustain level. I covered this in the December 2011 column and again in October 2013 on Jordan Rudess' lead sound. Sometimes Jack uses this approach, but he also likes using envelope shapes that are more "even" and sometimes envelopes that decay slowly. When Jack designs leads that will be used for longer held notes and slower playing, he prefers to keep a more level volume.

"The attack spike works well for aggressive playing, but using a smother envelope shape helps make a line sing better," says Jack. "Using a volume pedal lets you shape your lines like organists who use the pedal for dynamics, or assigning your modulation wheel to MIDI CC 11 (expression) lets you think like a horn player. You can also balance your playing registers better, especially with non-velocity sensitive leads." **Figures 1** through **3** on page 38 show examples of the EG shapes he uses.

To get a singing lead tone from a distorted electric guitar sound using PCM, he doesn't always use the original attack from the sample, as it may get in the way when connecting notes within the phrase. Different synths offer ways to avoid this; in the Korg synths he programs, they offer multiple start points for the sample(s). Sometimes it's only one point moved in from the attack (usually just the looped portion), while other synths offer up to eight different start points that are pre-programmed by the developers, each moving further into the sound.

"I haven't even skimmed 2% of what this thing can do!"

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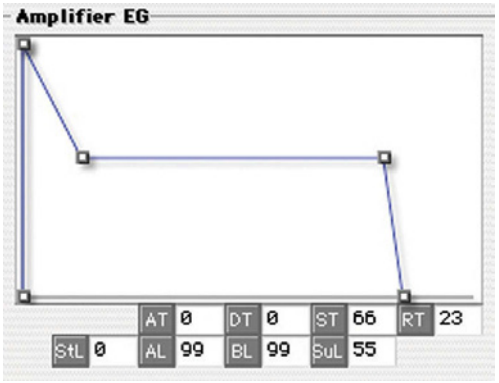

Fig. 1. This spiked amp envelope is the first of three shapes Jack Hotop likes for crafting leads.

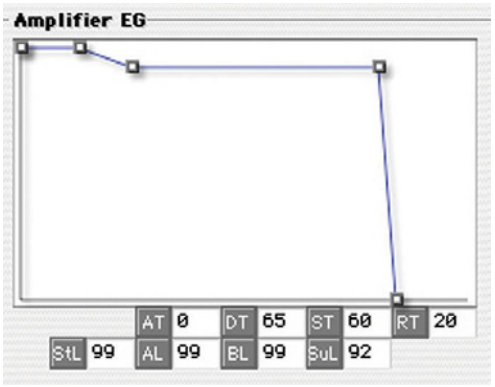

Fig. 2. This smoother envelope has a more singing quality.

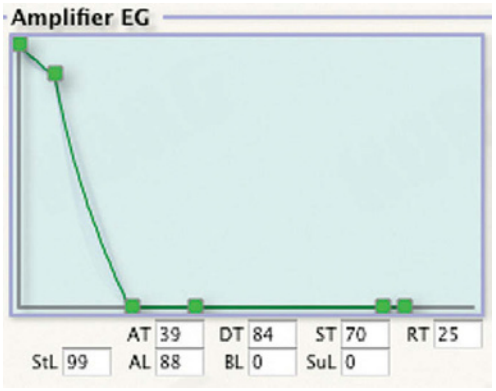

Fig. 3. Here's a decaying amplitude envelope for leads.

Letting Go

Jack feels that the amplitude release stage is critical: too short of a release and the sound gets choppy, too long and it might sound sloppy. In general he will keep the filter release longer than the amp, so if he does choose to add a slight release tail to the sound, the filter won't be heard shutting back down before the amp fades out.

Sync Suggestions

When creating synced oscillator sounds Jack sometimes puts a small amount of slow LFO-based pitch variation in the modulator's sound to make it feel "alive." He likes making both fixed frequency sync sounds (without an automatic sweep of the modulator's pitch), and sounds that do have the sweep built in. To produce sweeps, he often likes to use an LFO, step sequencer, or loopable envelope, so the sound doesn't just sweep and stop. This way when you want to hold a longer tone, the sound will keep moving. That slight LFO assigned to pitch helps out as well!

A Distorted View

Jack is very critical of distortion tones, and works hard to keep them from sounding harsh, buzzy, digital, or muddy. Here, he shares his usual workflow:

"I find that simpler waveforms tend to work the best, although I'll go beyond what you think of as the usual suspects. I recently made a distorted lead in the Korg Kross using an electric piano waveform (program C-021, "EP Annihilation SW2"), so anything's eligible to me if it works well! When I first call up a guitar amp/speaker simulation, I'll just listen to various combinations of amps and cabinet types until I get a general tonality that I like. That involves not only choosing the right models, but also listening to how varying the input gain versus the output changes the sound. Often a speaker simulation cuts too much definition out of the sound, so if it offers a mix control, or a direct signal path I will work with that. I should mention that I usually flatten out any built-in EQ settings within the effect when starting out. These EQ stages are always post distortion/gain, so if I feel something is lacking in the distortion itself I may go to an EQ that occurs before this effect, or add another EQ effect before the guitar sim/overdrive. I might boost bass to give the amp sim some more meaty frequencies to work with. But there are no hard/fast rules.

"Next I'll work with the post-gain EQ, first sweeping the mid frequencies to find an area that gives me some more body and definition. I often choose a bump up somewhere between 3 and 3.4kHz, but that's based on the Korg amp models—your settings will be different based on your synth of choice. On the top end I don't like to just cut highs and harshness with a shelving EQ—that's too brute-force. I look for the offending frequency by boosting a narrow band parametric to find the problem area, and then give it a cut, trying out varying bandwidths. If there's a lot of digital harshness I might use a shelving EQ cut, but I'll put the cutoff pretty high, from 11 to 19kHz depending on the sound. At times, chaining more than one amp sim, or an amp sim going into an overdrive in series can work well, as each has its own special character."

Before or After?

Many programmers like to use a compressor on distorted lead sounds, and Jack has advice on that as well. "If I want the sound to hit the distortion dynamically I'll put the compressor after the distortion. There are so many nuances of tone that happen when you vary the input to the effect, and they can get lost due to the actions of the compressor. So I'll put the compressor after the distortion/amp sim to give the final sound more body and sustain." What settings does he use? "I have no set formula, for a natural sound I simply experiment, and I suggest you listen carefully to how your effects respond. Keep playing and varying parameters while you listen to what they do. Shut your eyes; stop looking at and thinking about numbers and let your ears and taste take over."

Parting Thoughts

Some final advice from Jack: "Always test your sounds through your live rig, and/or against a track. What sounds good by itself often changes through other playback systems or in a live room. If you're working on a specific song, optimize the sounds for the parts and mix of that tune. When any manufacturer voices a synth, we have to make our sounds all-purpose, but you should hone in on your specific needs. Vary your LFO speeds for vibrato; consider the tempo of the tune and don't make every sound the same. Last but not least, don't forget to shut your eyes, make some emotional faces and get lost in the joy of playing!" ♫

SOUNDCLOUD

Korg M50 demo showcasing Jack Hotop's "lead guitar" playing on synth.

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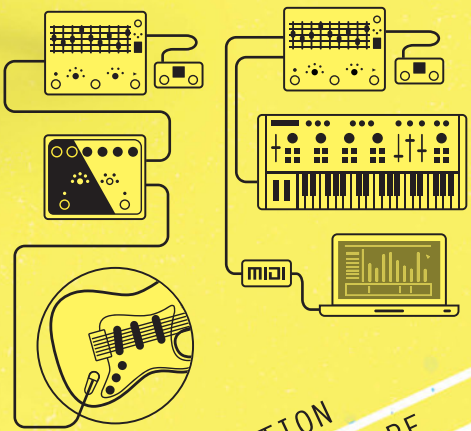

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No Static At All

RETRO BASS WITH FM SYNTHESIS

BY FRANCIS PRÈVE

WELL, NOW THAT THE EARLY '90S SOUND IS BACK AND IN FULL EFFECT, it's time to familiarize yourself with the synth patches of that era. While analog tones are a huge part of that period of music production, it's important to remember that it was also the peak of the digital age, with synths like the Korg M1 and Roland D-50 dominating house and techno music.

In addition to these early sample-based synths, FM synthesis was still firmly entrenched in dance music production. Notably, Yamaha's affordable TX81Z, which featured one of the most popular bass patches of the day, "Lately Bass," which was featured prominently in Orbital's legendary "Halcyon and On."

This month, we'll delve into the essentials of creating FM bass patches using Ableton's Operator—so you can stay ahead of the curve, while the rest of the kids are still getting the hang of analog!

Step 1

Starting with Operator's default patch, extend the release time of oscillator 1 to 80 milliseconds to eliminate any clicking. Then, keeping the 1:1 coarse tuning ratio, increase the level of FM from oscillator 2 to about 60 to 70 percent.

Step 2

Next, to get that classic FM attack, adjust oscillator 2's modulator envelope so that it has an immediate attack, short decay, zero sustain, and short release.

Step 3

Fine-tune the sound by tinkering with oscillator 2's level and its envelope decay time. From there, try using different coarse tunings for oscillator 2, since alternate ratios can dramatically affect the overall character of this patch.

SOUNDCLOUD Step-by-step audio examples.

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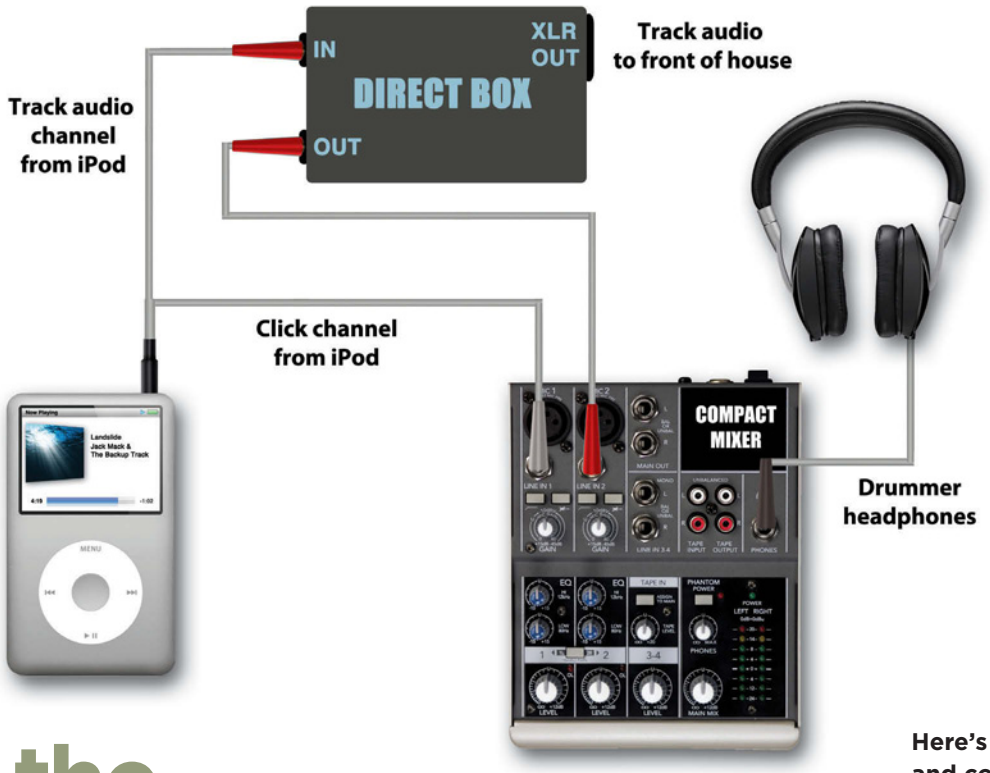

Give the Drummer Some

Here's how to cable up an iPod and compact mixer so as to send the drummer the click track and backing tracks, while sending only the backing tracks to the front-of-house.

BY MITCHELL SIGMAN

IN PREVIOUS COLUMNS WE'VE BEEN TALKING ABOUT CREATING BACKING tracks to bolster your cover band's live shows. Now that we've got some kickin' tracks, let's address the nuts and bolts of incorporating a mixer and iPod into a live setup.

It makes sense to have your drummer run the tracks because he or she is usually the one counting off songs. In this setup you'll be using a stereo playback device (most likely the ubiquitous iPod, but any two-track digital player will work). The track should be set up with the click track in the left channel—this is meant to be heard *only* by the drummer in headphones or ear buds. The right channel should contain all music content and is sent to the house system as well as monitors for other band members.

Your drummer will need a compact mixer with 1/4" inputs plus a stereo mini jack-to-dual 1/4" Y-cable. The optimum setup is to send the click track and music to separate mixer channels, both center-panned (as the click pounding away in just one ear can be fatiguing). If we plug the click and backing track into the mixer and sent output to the front-of-house we'll have two problems: The front-of-house will receive the click track we don't want our audience to hear, and our drummer won't be able to adjust his or her monitor mix without affecting levels at front-of-house. There's a better way—we'll run the drummer's compact mixer independently of the house mix. Here's how.

1. Plug the click side of the output cable directly into a channel of the drummer's mixer and pan it to the center.

2. Plug the backing track side of the output cable into a direct box (DI). Almost all direct boxes have an output jack that's simply a split from the input, so run a short 1/4" cable from the DI out to a channel of the drummer's mixer and center pan it.

With this setup, we've given the front-of-house a constant-volume feed of the backing track while keeping the click out of the front-of-house. Our drummer also gets independent click and backing track levels *without* affecting the house mix. Meanwhile, the monitor engineer (usually the same person as the front-of-house enginner in smaller venues) can use the same constant-volume track feed for band member monitor mixes.

Because headphones or ear buds effectively act as ear plugs, drummers often feel sonically isolated from the rest of the band. Since most compact mixers have an XLR mic input, a low-tech solution is to place a mic on a stand above the drummer and plug into an unused mixer channel to pick up stage and audience sound. This mic can serve double-duty as a simple talkback, letting band members speak directly to the drummer to discuss song choices (or anything else) privately. Another handy use for an extra mixer channel: Instead of blasting a monitor mix through a wedge, cable a low-level signal to a mixer channel for direct monitoring through the drummer's headphones or ear buds.

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(JAM)

IK iKLIP STUDIO iPAD STAND

With the wide variety of available music software, both for creation and performance, an iPad has become an essential part of every musician's toolkit. IK's iKlip gives you a safe, secure way to mount your iPad to a mic stand, so it's there when and where you need it.
(IPIKLIPSTUDIOIN)

APPLE LIGHTNING TO 30-PIN ADAPTER

Apple's new Lightning connector is small, fast, and power efficient, but may leave many of your older iPad and iPhone accessories disconnected. This Lightning to 30-pin adapter gives your accessories a new lease on life, enabling you to use them with the latest generation of iOS devices.
(MD823ZM/A)

SENNHEISER HD280 PRO HEADPHONES

The Sennheiser HD280 Professional is designed to exceed the demands of the professional environment, with robust construction and extensive features that meet the requirements of today's most demanding applications.
(HD280)

For more info on iOS-based recording, go to: guitarcenter.com/IOS or scan the QR code

Itty Bitty Squishy Things!

FOUR ULTRA-PORTABLE MIDI CONTROLLERS

BY DAVID BATTINO

SMALL IS BEAUTIFUL, BUT EXPRESSIVE IS EVEN BETTER. THESE FOUR controllers are tiny enough to toss in a laptop bag, yet each offers innovative new ways to shape your sound. All four connect to a computer or iPad via USB. (For the iPad, you'll need Apple's $29 Camera Connection Kit, plus a powered USB hub in the case of the Akai.) Two support five-pin MIDI Outs as well, so you can plug them into a standard synth keyboard and gain new controls. Three of these controllers feature polyphonic aftertouch, an expressive feature usually found only on high-end MIDI keyboards. Here, real-world prices range from $59 to $149, so you could conceivably run all four off a powered USB hub and create a mega-mini-controller. I did just that, and here's what I learned.

CME
Xkey

If Apple designed a music keyboard, it would look like the Xkey—and cost twice as much. The Xkey is built from a swooping slab of aluminum with a solid plastic back. At 0.62" tall, it's thinner than a MacBook Air, but feels very strong.

That feeling of quality extends to the keys and buttons. The 25 keys are full-size, though they have about a 1/8" gap between them where they pierce the case. My fingers got used to that spacing quickly. The keys transmit both velocity and polyphonic aftertouch.

Features and Controls

I/O and display are as streamlined as the rest of the design: You get a micro USB jack and a power LED. There are octave up and down buttons, a sustain button, and three pressure-sensitive buttons for modulation, pitch-bend up, and pitch-bend down. The harder you press, the more the sound bends. That's much more musical than the pitch and mod buttons on other low-profile controllers, which simply trigger a modulation ramp.

The Xkey transmits on MIDI channel 1. A free iPad app lets you change the channel, draw your own velocity curves, adjust key sensitivity and timing, and update the firmware. Editing for more controller assignments is promised. I'd welcome a computer-based editor too.

Keyboard Feel

Playing the Xkey, you're essentially typing on 25 vertical spacebars. There's a clacky sound, but response is quick, and it's consistent all the way to the top of the keys. I found that more playable than the stubby lever action on other inexpensive keyboards, particularly minikey models. The aftertouch is easy to control, and it's especially easy to play slides.

Built like a laptop computer keyboard, the CME Xkey offers polyphonic aftertouch in a strong, thin case. Pressure-sensitive pitch and mod buttons make it even more expressive.

Each key on the QuNexus senses velocity, polyphonic aftertouch, and "tilt," a rocking motion of your finger. It's a CV/MIDI converter, too.

Its pads transmit only velocity, not aftertouch, but the Korg NanoPad 2 has many hidden talents, like a Kaossilator mode and the ability to send chords from each pad.

With standard MIDI Out cables (via 1/8" adapters), the Akai MPX8 is a fast way to add poly pressure pads to a standard synth keyboard. It plays WAV files, too.

Akai
MPX8

The chunky MPX8 is more than a pad controller. Pop in an SD card and you can trigger stereo WAV files from the eight velocity-sensitive pads. You'll need firmware v1.0.01 or higher to load stereo files. (While you're at Akai's site, grab the Mac/PC editor and 483MB of free samples.)

The MPX8 can load samples as large as 30MB, distributed among the eight pads in a kit. You can save 99 kits to a card, plus eight internally. There are 21 short internal samples, too. Samples load sluggishly from the card: A 1.4MB kit took 14 seconds; 18MB took 100 seconds. Also, the pads stop transmitting MIDI while samples are loading.

Features and Controls

That said, the sample player is good, basic fun. There are no velocity crossfades, open-to-closed hi-hat cutoff, filters, or envelopes, but the timing is tight. You can add reverb and adjust panning, level, MIDI note number, and transposition (up or down four semitones, which changes the duration). Playback modes are one-shot, hold, and loop.

For MIDI, there's both USB and standard DIN (via included 1/8"-to-five-pin adapters). You can use both types at once, though they're always on channel 10.

Pad Feel

The MPX8 pads have a wonderful, soft feel that makes them comfortable to play yet responsive enough for fast rolls. That squishiness makes it easy to control polyphonic aftertouch, too, though I missed Akai's signature Note Repeat feature, which retriggers a note as you change pressure. You get just one velocity curve, but it works well: Akai says its MPC Renaissance designers tuned the MPX8 pads. I discovered I could "choke" a ringing cymbal by pressing the corner of a pad lightly—sending a velocity so low the sound played almost silently.

Korg
NanoPad 2

It's been around for a while, but the NanoPad 2 still has some cool surprises up its $59 plastic sleeve. The build is light but robust; I've been playing its sibling, the NanoKey 2, with my band since my December 2011 *Keyboard* review.

You get four banks of programmable pads plus a 2" x 2.5" X/Y touchpad that can transmit pitch-bend, controllers, and bursts of notes synced to MIDI Clock.

Features and Controls

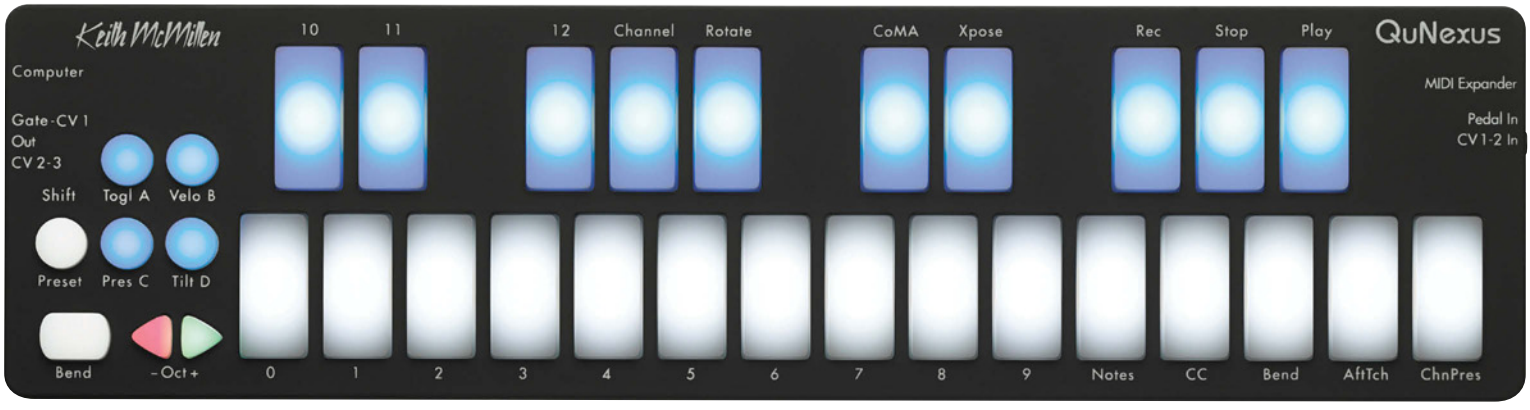
The NanoPad 2 has the best software bundle in this roundup, with a variety of soft synths plus a straightforward editor. You can assign each pad its own MIDI channel and up to four notes, so you can trigger chords. Alternatively, pads can transmit program changes or up to four Control Changes.

Normally, the touchpad sends Control Changes on one axis and pitch-bend on the other. Press the Touch Scale button and the touchpad triggers notes in one of 16 scales as you slide your finger horizontally—very cool. (You can select the scale, base key, and octave range from the front panel.) Gate Arp mode retriggers the note you're holding on the current pad for instant rolls and stutter effects.

Pad Feel

The pads have a feel in between the firm QuNexus and cushioned MPX8: They depress a bit. There are four velocity curves, but even on the soft setting, I had to stab fairly hard to trigger notes. At about 7/8" wide, the pads are on the small side. Striking opposite corners instead of edges makes it easier to play two-finger rolls because the corner-to-corner distance is 1.25". The touchpad compensates for the lack of aftertouch, but I wish the pads lit up. In toggle mode, that would make it easy to see the status of a loop you'd triggered.

Keith McMillen Instruments
QuNexus



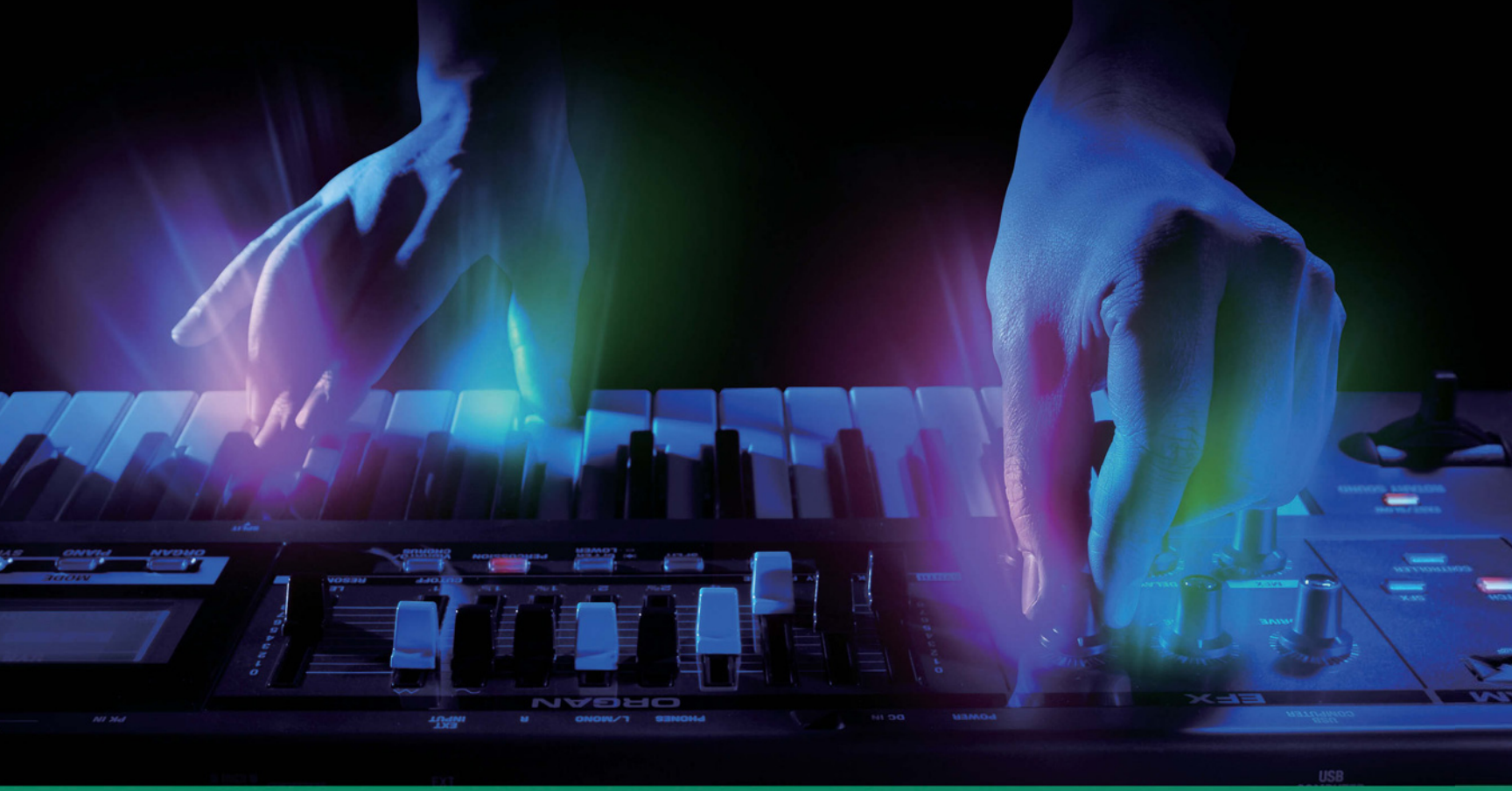
When you want it all and you want it small, the QuNexus is hard to beat. In fact, "hard" was my first impression of the keyboard feel—the keys don't *move* like normal pads or buttons. Once I got used to the sensation of tapping on a tabletop, albeit one with a grippy rubber texture, I found the response to be lightning fast.

In addition to velocity, the keys also sense polyphonic aftertouch and a unique parameter called tilt: You can send pitch-bend and MIDI control changes by rolling your finger up and down on a key. The software editor enables extreme customization. You can program response thresholds, scaling, offsets, curves, and minimum and maximum values; assign multiple (or different) CCs to each key; send sequential notes out different MIDI channels to enable per-note bending; and much more.

The "nexus" in the name reveals another powerful feature. This tiny keyboard also functions as a hub for USB MIDI, five-pin MIDI (via an optional breakout box), and control voltage signals. Cable it between a computer, a MIDI synth, and a modular synth and you can play anything using anything else.

I/O You One

There are five jacks on the QuNexus, several offering multiple data streams. A micro USB jack connects to a computer, tablet computer, or power supply (en-



JUST PLAY

The new VR-09 is everything the working musician needs, including a hand-picked collection of Roland's finest sounds, available at the touch of a button. Classic synths, beefy organs, grimy EPs,and pristine pianos.

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	AKAI PRO MPX8	CME XKEY	KEITH MCMILLEN INSTRUMENTS QUNEXUS	KORG NANOPAD2
Price (list | street)	**$199 | $99**	**$99 | $99**	**$199.95 | $149**	**$75 | $59.99**
Keys/Pads	**8 (velocity, poly AT)**	**25 (velocity, poly AT)**	**25 (velocity, poly AT, tilt)**	**16 (velocity)**
Special Features	**Plays WAV samples from SD card**	**Pressure-sensitive pitch and mod buttons**	**CV/gate; tilt sensors; Controller Mapping Assistant**	**Kaossilator scale mode; gate arpeggiator**
PROS	**Simultaneous MIDI + USB I/O; display; pad feel**	**Strong aluminum construction; consistent, full-size keys**	**Deeply programmable; unique tilt sensors; detailed manual and videos**	**Affordable; generous software bundle; can send multiple notes per pad**
CONS	**Requires powered USB hub for iPad use; slow sample loading; MIDI channel 10 only**	**No computer editor (iPad only)**	**Bulky MIDI adapter; pitch-bend button is hard to control**	**Pads don't light up; no aftertouch**
Website	**akaipro.com**	**cme-pro.com**	**keithmcmillen.com**	**korg.com**

abling you to use the MIDI or CV features without a computer). Below it are two 1/8" TRS jacks. The first sends analog CV and gate signals; the second sends two more CV signals. With a Y-cable from Keith McMillen's CV Cable Kit ($29), I played a friend's Serge modular synth. The excellent QuNexus manual provides schematics for making your own cables and converting the 5V signal to ±10V.

On the right is a 1/8" TRRS (four-conductor) jack you can split into two CV inputs, plus a mini USB jack for the $49.95 MIDI Expander, an awkward metal box with standard MIDI in and out jacks. I preferred the compact 1/8"-to-DIN cables on the Akai.

Performance Features

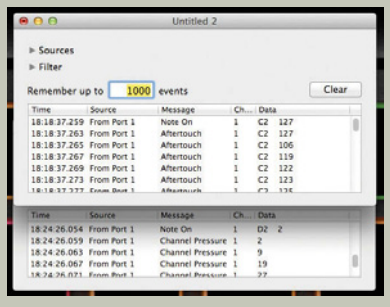
The QuNexus is solidly built, with a reassuring heft, elegant rubberized finish, and way-cool light-up keys. That was really helpful in the dark clubs and outdoor gigs I played during this review.

There are four presets, which you configure with the editor. That's surprisingly few for a controller with this many features, but the Live Edit mode lets you make quick tweaks such as changing the MIDI channel and sending program changes. The clever Controller Mapping Assistant mode temporarily restricts each key to a single type of MIDI data so you don't confuse the MIDI Learn function of your soft synth or host.

In lieu of a sustain button, the QuNexus has a toggle mode that sustains each note you play until you tap it (or the Toggle button) again. This works great with the light-up keys. You can also wire up a sustain pedal using the schematics in the manual.

The odd little Bend button sends pitch-bend data as you tilt it left and right. You need to set the Bend Range parameter to 12 in the software to get the full range of MIDI values. And pressing too softly on the button as you rock it makes the pitch jump. I preferred the straight pressure response on the Xkey's bender pad.

In fact, tweak as I might, I never got the QuNexus dialed in to where I could consistently pull off a smooth pitch-bend or play without introducing unwanted vibrato. But its exceptional trigger response, construction quality, connectivity, and light-up keys have made the QuNexus my favorite controller for finger drumming and on-the-go keyboard playing as well. ♫



UNDER PRESSURE

There are two kinds of MIDI aftertouch, typically generated when you press harder on a key or pad after it has bottomed out. A *channel pressure* message contains both the MIDI channel number and the greatest pressure value of all the currently pressed keys—as shown in the bottom window in the picture. *Polyphonic key pressure* messages, also called poly aftertouch, include the note number as well (for example, *C2*), as seen in the top window. That lets you send a different pressure value from each key you're holding. Most keyboards with aftertouch send only channel pressure, because it's cheaper to implement.

With a compatible synth, poly aftertouch lets you emphasize individual notes in a sustaining chord by pressing harder with one finger. For example, you might open the filter, add vibrato, or bend the pitch. Popular soft synths that respond to poly aftertouch include Arturia CS-80 V, Native Instruments Reaktor, Spectrasonics Omnisphere, and (on the iPad) Wizdom Music MorphWiz. If you're running a soft synth as a plug-in, the host program will need to understand poly aftertouch as well. As of this writing, Ableton Live 9 doesn't. Many hardware synths respond to poly aftertouch over MIDI even if their own keyboards don't generate it.

See It Now!

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APPLE
Logic Pro X

Keyboard KEYBUY AWARD

BY JOHN KROGH

IT'S BEEN FOUR YEARS SINCE APPLE RELEASED A MAJOR UPDATE TO THEIR flagship digital audio workstation, Logic Pro. During that time speculation among the professional music community has been running wild with hopes for a game-changer, not to mention fears that Apple might forget the faithful. As a longtime Logic user myself, I felt a mix of excitement and anxiety when Apple announced the latest incarnation of Logic, dubbed Pro X (ten), back in July. I've had time to live with Logic Pro X (LPX from here on) for a while now, and I have to say, quite happily, that this version offers more for keyboard players, sound designers, composers, and songwriters than any previous release to date.

User Interface

The most apparent change in LPX is a majorly overhauled user interface that goes well beyond cosmetic tweaks. In my brief with Apple I was told that one of the goals with this version was to present a design that encourages "progressive discovery." Part of what this means is that "advanced" features of the user interface can be hidden to simplify the experience for new users, making it easier for them to acclimate without getting overwhelmed by the details. As users become more experienced, they can dive deeper by enabling these hidden aspects of the interface. Sounds good in theory.

When I first launched LPX, the software asked me if I was a new or experienced user. I chose "experienced," which should have enabled the entire interface, advanced features included. However, LPX launched in the "newbie" mode, but this was a glitch (see page 11). For example, with Advanced Tools turned off I found that I couldn't enter tempi with a decimal place. When I tried entering a tempo of 126.4 bpm, the simplified transport interpreted the entry as 1,264 bpm!

Once I enabled "Show Advanced Tools" from the Advanced Preferences options, however, I was in business. You can see a preview of what gets hidden with Advanced Tools turned off in **Figure 1**.

Another goal Apple had was to make Logic more, well . . . logical. To this end, the names of certain features, menus, and windows have been changed to be clearer and immediately intuitive. The Arrange window, where audio and MIDI track regions are laid out horizontally in typical linear fashion, is now simply called the Track window (duh). Basic record settings such as metronome count-in and MIDI cycle record options are now organized under the new Record menu (double duh).

Most of the interface changes make a lot of sense and generally improve workflow. There's less need for modifier keys—bypassing and moving plug-ins can be done by clicking and dragging as there's no need to use the Option or Command keys in tandem. A darker background color scheme combined with brighter foreground colors provides better visual feedback. (It's easier to see the cycle area, muted regions, and the solo/mute states of tracks, for example.) The transport, previously positioned along the bottom, is now along the top, thereby eliminating the risk of accidentally clicking in the OS X application dock.

Accessing instrument presets is now done on the left-hand side of the screen via the new Library Browser. Browsing instrument presets used to be done from the right-hand side, but the instrument plug-ins themselves were shown on the left in the dual channel strip Inspector pane. This was always a bit of a disconnect for a lot of people, but won't be now.

As I browsed through the new Patch Library (more on this later), I couldn't help but notice the generously sized and detailed graphic representations of the source instruments. Facsimiles of various classic synths from Waldorf, Moog, Yamaha, and others are displayed to imply the sound source currently loaded. It's great eye candy, and you can size the icons smaller or hide them entirely.

Some of the new onscreen areas—the aforementioned Patch Library browser and the Smart Controls window, in particular — eat up a fair amount of screen real estate. I found that on my 27" screen the interface quickly became crowded, leaving little room for me to actually see my tracks. Maybe this gives me the perfect excuse to upgrade to multiple screens!

A nice touch that new and existing users alike

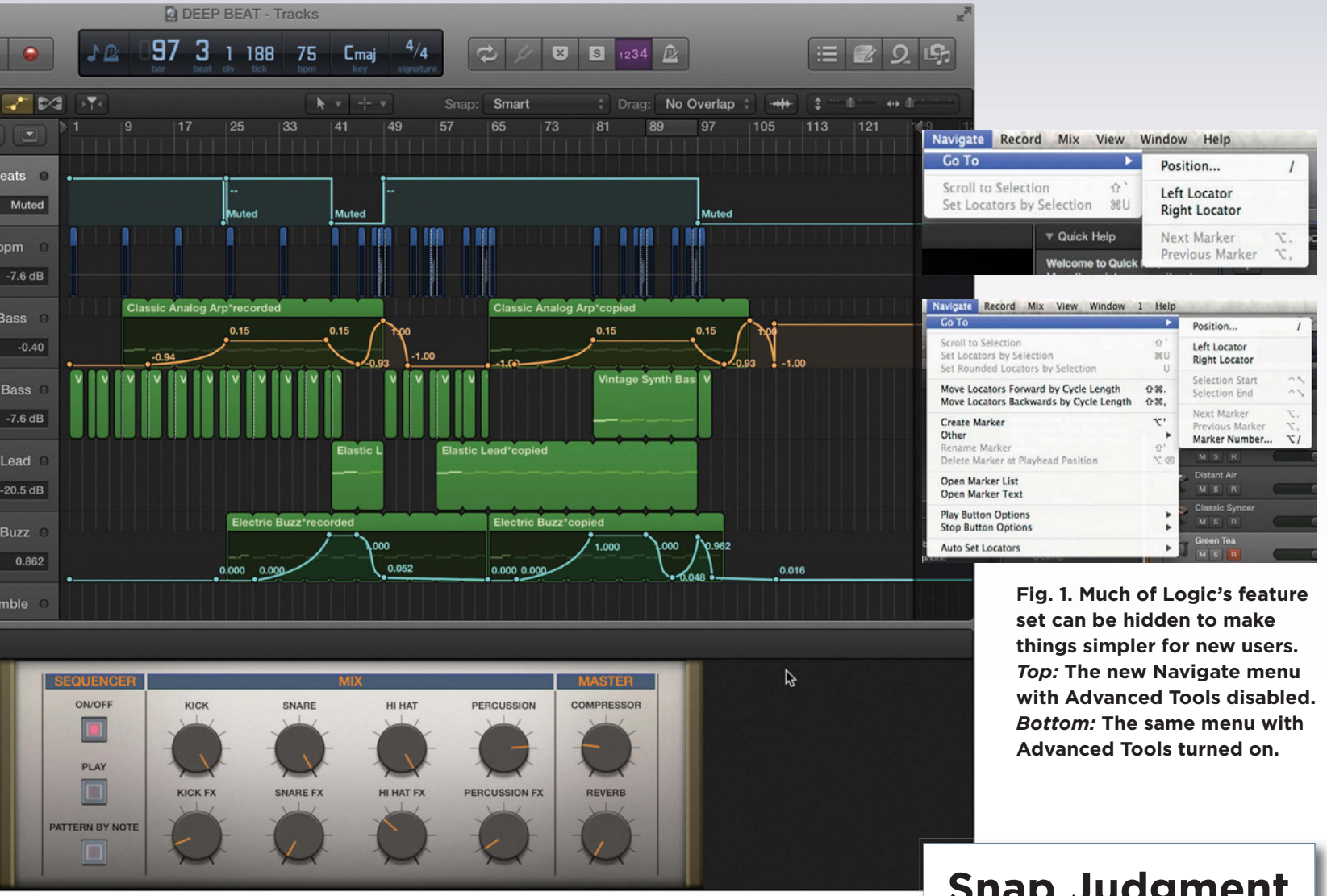

Fig. 1. Much of Logic's feature set can be hidden to make things simpler for new users. *Top:* The new Navigate menu with Advanced Tools disabled. *Bottom:* The same menu with Advanced Tools turned on.

should appreciate is the Quick Help feature. It shows the name and function of whatever you hover the mouse over. I found this to be a great way to shortcut my learning curve during the review. Overall, seasoned Logic users should have little difficulty adjusting to the interface and new users should have a much easier time getting up to speed compared to previous versions.

Remote Control

Third-party DAW control apps that work with Logic have been available for years now. But Apple finally jumped in with their own Remote Control app for the iPad, which is free and provides a lot more than transport and mixer control. There are a total of five display modes, including a Key Command display that lets you access up to 366 customizable commands (see **Figure 2** on page 52).

In Smart Control mode, RC shows a virtual keyboard along the bottom of the screen, which is helpful if you want to audition sounds when you're not at your MIDI keyboard. However, there's no way to hide the virtual keys, which fill nearly half the screen. This was an issue for me when I tried to work the Virtual B3 organ's drawbars from the iPad. The drawbars were too small and too close together for me to grab combinations and "play" them the way a seasoned organist would. How about a preference to show/hide the virtual keys? This minor niggle aside, Remote Control is a boon for iPad-owning Logic users. "In mixing mode, the piano keys aren't present," observed *Keyboard* editor Stephen Fortner, "so if you have an iPad, you have a touchscreen control surface for mixing and Logic's transport. For me, having that extra poke-and-go real estate next to my main workstation is the big benefit here."

In use, Remote Control was extremely responsive and it quickly became indispensible. I can't imagine using Logic without Remote Control ever again.

Snap Judgment

PROS Intuitive user interface. Best-in-class virtual drummer instrument. Updated vintage keys offer even more vibe. Track Stacks open the door for unprecedented sound design possibilities within a DAW environment.

CONS Smart Control moves aren't recorded as part of a MIDI performance when mapped to MIDI hardware controls. Channelizing MIDI controllers within track stacks is not as straightforward as it should be.

Fig. 2. Two of the display modes in the new iPad-based Remote Control. *Left:* Smart Controls for the new Virtual B3 organ. *Right:* Large transport controls and oft-used commands.

Patches and Libraries

In previous versions you could save entire plug-in chains as Channel strip presets. These would include instrument settings along with all of the settings for any plug-in inserts on the instrument's channel strip. However, effects that were set up on aux channels were not saved with the channel strip settings, which meant you had to load two presets if you wanted to recall a complete patch with its associated send effects. This has been streamlined with a new file type called Patch.

Patches are similar to Channel Strip presets except that Patches can include send effects and their associated aux channel configurations, as well as multiple instruments layered in a new track type called Track Stacks (more on this below). This takes Logic's sound design possibilities to a whole new level, which is evident when you start auditioning some of the preset sounds that were created by layering multiple instruments using Track Stacks. I'm happy to hear that Apple invested in quality sound design, and I suspect many users will find a lot to like with the new material.

In general, browsing and auditioning sounds is easier. Related to the Patch file type, the Library browser focus can be directed to present Patches or instrument-specific presets, depending on where you position the cursor within the dual channel strip area. Additionally, there are subtle enhancements that make the process of exploring and choosing sounds more musician-friendly. For example, the Revert button lets you jump back to the previously loaded preset if you're not happy with the one you just selected.

New and Updated Instruments

Logic was once known for having top-notch virtual vintage keyboards. But over time the built-in B-3 organ, electric piano, and Clavinet plug-ins fell from their leading-class status as third-party developers came to market with better emulations.

Now with LPX, Apple has doubled down on vintage keyboard modeling once again by updating the former EVB3, EVP88, and EVD6, giving them more intuitive interfaces, simpler names (Vintage B3 Organ, Vintage Clav, and Vintage Electric Piano) and most importantly, new sonics. Apple didn't give many details, but apparently the updated instruments employ better modeling. To my ears there was a definite improvement in sound quality and vibe, with the Vintage B3 in particular, although this could be somewhat attributed to an improved Leslie speaker sim.

And speaking of Virtual B3, I was pleased to find that it has presets that allow you to control its virtual drawbars using the physical drawbars from several popular clonewheel keyboard series, including the Korg CX, Roland VK, and Hammond SK/XK. Nice.

Also new to the roster is Retro Synth (see **Figure 3** on page 54), which offers subtractive, wavetable, and FM synthesis methods. Again, the interface is more intuitive and inviting compared to Logic's older synths such as ES2 (although curiously Retro Synth lacks a filter cutoff knob—you have to tweak cutoff by dragging in the filter response display). More importantly, the sound is a noticeable step up from the "legacy" synths. Retro Synth certainly has more of an analog character, though I wouldn't go so far as to call it ballsy or punchy. The filter isn't very aggressive, but it is capable. Considering this is a built-in synth, I'd give it an A minus.

Track Stacks

Logic has had region-based folders for years, but LPX takes the concept further with Track Stacks, which allow you to combine multiple tracks and sum their outputs for easier management. There are two types of stacks: Folder and Summing, the latter of which allows you to layer multiple instruments and treat them as a "combi," to use hardware keyboard-speak. This capability means you can create sophisticated layered sounds that comprise multiple software instruments, submixed to an aux channel, and save everything as a single patch. For keyboard players who like to "roll their own," this is a huge workflow improvement that opens up new possibilities for creating layered textures.

MIDI continuous controllers aren't channelized with Track Stacks, however, so it's not possible to use MIDI volume automation or track automation to adjust volumes for individual instruments within a stack if you're working with sounds assigned to discrete channels within a multitimbral instrument such as NI Kontakt or

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Fig. 3. Retro Synth offers subtractive, wavetable, and FM synthesis methods. File under fun: The user interface changes depending on the method selected. With Wavetable, shown here, the interface becomes bright blue—a clear nod to the PPG.

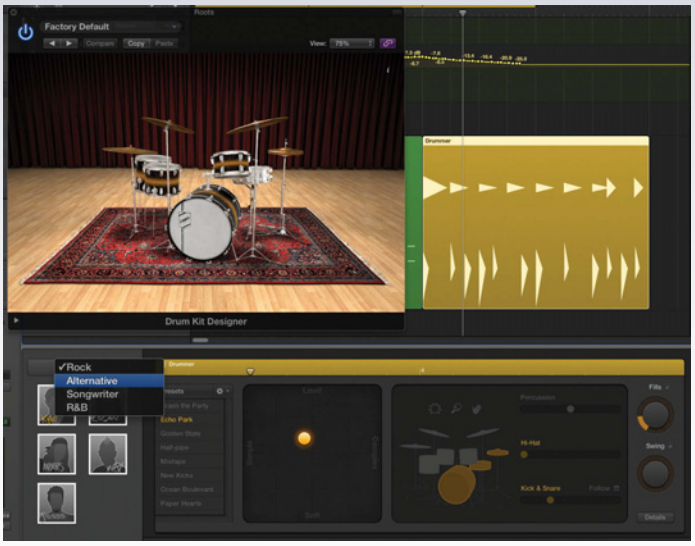

Fig. 4. Drummer is a songwriter's best friend. Building "live sounding" grooves in a sequencer has never been easier.

Spectrasonics Omnisphere. There is a workaround involving aux tracks, and you can learn how in the online video that accompanies this review.

Drummer

Arguably the most game-changing feature is Drummer, which combines several technologies into what I consider the most elegant virtual drummer plug-in to date. Drummer is actually a combination of three components: expertly sampled drum kits (via the new Drum Kit Designer sample-based instrument), a library of fantastic MIDI drum performances played by 15 different drummers, and the Drummer Editor, which features an X/Y pad for directing the intensity of the performances in terms of loud/soft, simple/complex, genre, and more (see **Figure 4**).

More than simply spitting back canned drum performances, Drummer has built-in musical intelligence, so as you massage the settings from the editor, Drummer will produce variations according to song section (*e.g.*, intro, verse, chorus, and so on, determined by the new Arrangement Markers) and musical intentions (*e.g.*, less or more fills, grooving on toms versus hi-hat, and more). In a word, it's brilliant.

Smart Controls

Ever wish Logic had a way to create macros for controlling multiple plug-in parameters at once or to easily get your hands on just the right controls for making dramatic and musical tweaks to an instrument's sound? Now you can with Smart Controls, which feature a set of screen controls, each of which can be used to modify one or more plug-in or channel strip parameters for a given track.

By default, Smart Controls for LPX's built-in instruments automatically map to parameters according to what most users would want to tweak. When Vintage B3 is selected, for example, Smart Controls are provided for a set of drawbars, rotary speed, chorus on/off, percussion settings, distortion, and more, putting all of the tone-shaping controls right at your fingertips. With a synthesizer, Smart Controls provided filter settings (cutoff, resonance, attack, release), oscillator mix, and so on.

One gripe: I discovered that Smart Control moves aren't recorded the way other MIDI-mapped controls are—you need to use one of the automation write modes (Write or Latch). This means an extra step if you want to record a MIDI performance along with Smart Control moves, and the potential to mistakenly overwrite your Smart Control moves if you don't switch automation modes before cycling playback. Even so, Smart Controls add a level of musicality to the Logic experience that I suspect every user will appreciate.

Conclusions

The wait might have been long, but it certainly was worth the reward. Logic Pro X manages to improve the user experience from a purely interface design perspective, but also as a creative tool that helps inspire and facilitates musical exploration. Apple has done an admirable job of adding musician-friendly features, refining the interface for improved navigation and operation, and pushing the envelope for what we can expect from a DAW as a compositional tool. And at 200 bucks, Logic Pro X is easily a Key Buy. ♫

Bottom Line

By far the most features for the least money in any DAW—as long as you're on a Mac. Whether you're a new or experienced Logic user, Logic Pro X will not disappoint.

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CLAVIA
Nord Lead 4

BY TOM BRISLIN

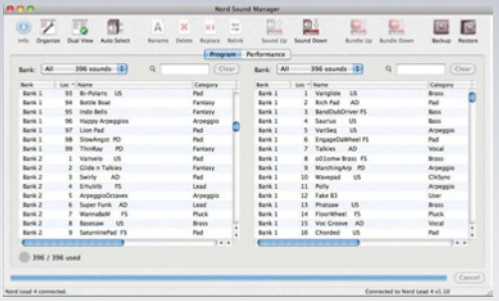
IT'S THAT LITTLE RED KEYBOARD THAT COINED THE TERM "VIRTUAL ANALOG." First arriving from Sweden in 1995, the Nord Lead used then-young modeling technology to recreate the sound of an analog synthesizer. What's more, it had a dashboard laden with realtime control knobs—a rarity for new synths at that time. It was a hit—so much so that we've come to expect realtime controls in all types of keyboards, from solo synths to workstations. The Nord Lead 4 is the latest model in the line, and this time it comes into a world chock full of virtual analog synths of all shapes, sizes, and prices. How does it compete, and where does it stand out? Let's put it to work.

Overview

The Nord Lead 4 sports a familiar form to its predecessors: the signature red chassis, four-octave keyboard, knobs and controls on the left side of the front panel, the trademark wooden "clothespin" pitch-bend stick, and pumice rock modulation wheel. New for the Lead 4 are wooden end caps, like on Nord's Stage and Electro keyboards. At 13.3 pounds, it's a lightweight gigging machine. Many of the knobs and buttons feature an alternate function, accessed while holding down the Shift key. A look at the panel gives a clue that the Lead 4 has harkened back to some aspects of the Nord Lead 2/2X (more on this below). The keyboard is a totally unweighted 49-key synth action, with velocity sensitivity but, oddly, no aftertouch. The action is tight and fast, but it'll take some getting used to if you're a player who likes a little resistance, even in a synth action. The main program section has a three-digit LED and edit dial, with a menu of additional functions printed directly on the front panel. Under the hood is a 20-note polyphonic synth engine with four-part multitimbral capability.

Oscillators

The heart (and start) of a sound lies in the Lead 4's two oscillators per program. Both oscillators feature the familiar building blocks: sine, sawtooth, triangle, two fixed-width pulse waves, and one variable-width (modulated by LFO 1) pulse wave. Oscillator 1 can also produce one of 128 available digital wavetables (single-cycle waveforms like you'd find in classic PPG or Korg DW synths). Note that these aren't fully sampled instruments from the Nord Sample Library, like you'd find in a Nord Wave, Electro, Stage, or Piano series instrument. Oscillator 2 features a noise generator with adjustable frequency (color) and resonance. There's an Oscillator 1 Mod section where you can activate frequency modulation, soft sync, and hard sync. Overall, the oscillators sound mighty clean. I attempted to produce some aliasing noise and digital artifacts by pitch bending various notes to extreme upper and lower ranges, and I was very impressed with how solid and unfettered the Lead 4's oscillators sounded. If you prefer a sound with some dirt mixed in, we'll find there are several ways to add some nastiness in the filter and effects sections.



The Nord Sound Manager lets you save and arrange preset programs and performances. It works with Windows XP/Vista/7/8 and Mac OS 10.3 or later.

Have a controller you like already? The Nord Lead 4R gives you everything except the keys for a list price of $2,199, which translates to about $1,999 at the retailers we surveyed.

New Filters

Each program has one filter, with seven types. Choose from 12dB-, 24dB-, and 48dB-per-octave lowpass filters, as well as bandpass or highpass. A delicious new feature for the Lead 4 is the addition of two vintage ladder filter emulations. We surmise that "TB" is based on the Roland TB-303 Bassline, and "M" is based on the classic Minimoog. They ooze character, and I'm inclined to reach for either when programming my own sounds. The Drive control allows the oscillators to overdrive the filter section (as is possible on many classic analog synths), creating some tasty results including increased frequency content and some activity in the sound while it sustains. If you're looking for a traditional overdrive that intermodulates the overall sound (like a stomp box or tube amp), you can find that in the effects section. I found the filters overall to be smooth and musical. It's a pity there's no audio input to run external audio sources through them.

Modulators and Arpeggiator

There are two ADSR envelope generators: one for amplitude and one for filter. There's also a basic Attack-Decay-Release envelope found in the Modulation section, which along with two LFOs is assignable to various modulation destinations (including pitch). The LFO waveforms are square, sawtooth, inverted sawtooth (LFO 1 only), triangle, stepped random, and smooth random. There's also a dedicated global vibrato generator, with settings found in the sound edit menu. Global vibrato can be activated in the Voice Mode Section, either as two different delayed vibrato settings or by assigning it to the modulation wheel. Situated near the top left corner of the panel, the Voice Mode section also includes controls for unison mode, monophonic/legato modes, glide time, and pitch-bend range. The pitch-bend range is adjusted in half-step increments up/down to one octave, then jumps to the two- and three-octave range. Beyond that, there are –12 and –24 settings, which will yield one and two octaves of downward bending, which you can combine with a whole-step of upward bending. This is ideal for subtle expressive upward bends but whammy bar-like dive-bombs when you want them.

Jumping back to LFO 1, there are a couple of key features here that may slip by at first glance. While holding Shift and pressing the LFO 1 waveform button, an LED labeled "MST CLK" (master clock) will light up. This will bypass the LFO 1 Rate control and sync the LFO to—you guessed it—the master clock. That's not all; if you turn the Rate knob all the way up (to the label marked "PAT"), the LFO will generate one of several

Snap Judgment

PROS Four-part multitimbral with no loss of polyphony or effects. Additional oscillator waveforms include digital wavetables. Tasty new ladder filter emulations. Built-in multi-effects. Master clock syncs LFO, arpeggiator, and delay. Impulse Morph adds instant expressive control of multiple parameters. High-quality construction.

CONS Non-weighted keys with no aftertouch. Main screen is only a three-digit LED. Internal power supply generates an audible hum. No audio input.

LEAD LINEAGE

While evaluating the Nord Lead 4 on its own merits, it's relevant to mention how it compares to previous Lead models for those current Nord users who are considering updating. Released in 2001, the Nord Lead 3 (shown) added many new features including an aftertouch-sensing keyboard, 24-note polyphony, a two-line LCD program screen, and rings of LED lights that collared the control knobs to indicate a program's knob position. Despite all of these desirable upgrades, 1997's Lead 2 continued to be popular. [*Some materials in the Lead 3 ran afoul of Europe's RoHS environmental regulations as well. —Ed.*] In 2003, Clavia released the Nord Lead 2X, which expanded the Lead 2's polyphony to 20 notes, upgraded the DAC to 24-bit/96kHz resolution, and added more patch memory. With the Lead 4, Clavia has conspicuously left out the Lead 3's aforementioned goodies—thankfully they kept the arpeggiator—and built what one could think of as the successor to the Lead 2X.

preset rhythmic patterns. It's a welcome feature, if not the most intuitively accessed. One more Shift-plus-tap of the LFO 1 waveform button activates the arpeggiator. All controls in this section will now control the Arpeggiator rate, direction, on/off, and range. It's a wonderful arpeggiator, divisible in both duple and triple meters, though it would've been nice to give it its own dedicated controls. So far we've been spending a lot of time shifting this and holding that, which slightly detracts from the user-friendliness.

Effects

Huzzah! The Lead 4 is the first of its line to have built-in effects. The first section, called FX, gives you a choice of tube-style overdrive, compressor, bit-crusher, and two types of "talk" effects. Moving the amount dial with a talk effect activated will yield a "wow" type talkbox sound. At first, I was disappointed that these types were chosen over the more conventional chorus/flanger/phaser offerings, but the little troublemakers won me over. From adding a little muck to sending the sound into outer space, the FX section is just that much more fun (especially when modulating the amount with LFO 2 or the mod envelope).

The final stage of the sound before it hits the output is the Delay/Reverb section—an either/or proposition. You get a choice of three types of reverb (room, stage, and hall), with adjustable dry/wet balance and brightness level, but not reverb time control. As for the delay, you also get the same dry/wet balance control, a choice of three preset feedback amounts, and a "Tempo" control, which generates faster repeats as you turn up the knob. The delay can also sync to the master clock, with various note subdivisions (eighth-,

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sixteenth-note, triplets, etc). The delay can be set to "normal," or "analog" style; the latter mode bends the pitch around while you move the tempo dial.

Morph, Impulse Morph, and Mutator

The term "morph" has meant different things to different synth manufacturers. In the Lead 4's case, it means the ability of a control source to modulate multiple parameters simultaneously—"macro" control by another name. The Lead 4 adds a new "Impulse Morph," triggering multiple changes instantly with the push of a button. Whereas the regular morph is used to adjust continuous parameters (*e.g.*, using the mod wheel to increase the filter cutoff, add vibrato depth, and increase reverb wet/dry mix all at once), an impulse morph button can be assigned to change switch-type parameters, such as changing the direction of the arpeggiator, activating the chord function, and more. There are three impulse morph buttons, yielding seven possible setups in a program.

With all of these ways to turn your sound inside out, there's yet another feature that makes for delightfully unpredictable results. The Mutator is an instant program generator that starts with the currently loaded program, and messes with it to varying degrees (you choose the intensity) to create a new program. Even starting with an initialized program, I was able to create some interesting textures; with the "random" setting we were in retro-sci-fi movie soundtrack territory in a snap.

Performances

A Performance is a multi-timbral setup. You can combine up to four programs (each sound in slots A, B, C, and D) for splits, layers, multi-MIDI channel operation, or fast program switching from slot to slot. What's killer: In performance mode, there's no sacrifice of polyphony or sharing of effects. It's really like having four full synths at once. Score! The 99 performances, like the 396 single programs, are all user-rewritable.

Conclusions

Nord keyboards have been known for surrounding their technically digital hearts with signature style and character, and the Lead 4 has a lot of personality. It's brimming with sonic power, so much so that its interface isn't quite as simple as in previous editions. Once you get the hang of it, you can really twist and maipulate the sound to your heart's content. With all of the analog and virtual-analog synth choices available, the sound will still cry out "pick me" to current Lead fans and synth freaks of all persuasions. At over $2,000, the lack of aftertouch and LCD screen is regrettable, but the added effects and lossless four-part multi-timbral operation add value. Like its predecessors, the Nord Lead 4 is built like a tank, and continues to be a leader in the synth world, be it "virtual analog" or otherwise. ♫

Bottom Line

A premier virtual analog synth gains a few new tricks—and loses a few as well.

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▸ First look at the Nord Lead 4.

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NOVATION
Bass Station II

BY FRANCIS PRÈVE

Snap Judgment

PROS Fully analog signal path. Tons of filter options. Ring mod, overdrive, distortion, and filter FM deliver a ton of sonic flexibility. Excellent arpeggiator. USB-powerable.

CONS Toggling between oscillators, LFOs, and filters can be a tad fiddly.

BACK IN 1993, NOVATION RELEASED THE BASS STATION. IT WAS A MONOPHONIC analog synth optimized for bass, with a sound that was reminiscent of the Roland TB-303, which was all the rage with the early '90s rave scene. Twenty years later, Novation is back with a 21st-century take on the original, retaining the original's fully analog signal path and adding a slew of modern amenities that make the Bass Station II a worthy contender in today's back-to-the-future analog landscape.

Overview

The original Bass Station included the essentials for a solid analog synth: Two oscillators, a resonant lowpass filter, dual attack-decay-sustain-release envelopes, and an LFO. By today's standards, that's still a solid offering. For the Bass Station II, Novation didn't want to simply regurgitate the original specs into an increasingly crowded market of affordable desktop analog synths. Instead, they piled on a ton of extras, like multimode filtering, dual LFOs, ring modulation, a sub-oscillator, two different kinds of distortion, and an array of other goodies, all while keeping the original's overall feel and compact two-octave footprint.

Unboxing the unit, I plugged it into my computer via USB and reached for the wall-wart power adapter. Returning to the synth, I was pleasantly surprised to find that it's actually USB powered as well. So with everything up and running in less than three minutes, I jacked it into my mixer and began fiddling.

Synth Engine

The Bass Station II's architecture is extraordinarily flexible for a $500 analog synth. Each of the dual oscillators includes sine, triangle, saw,

and variable pulse, as well as the ability to hard-sync the oscillators. The pulse width can be adjusted manually, or modulated by an envelope or LFO—and these settings are independent for each oscillator, resulting in some super fat sounds when combined with a touch of detuning.

The sub-oscillator is a bit more flexible than most, with options for sine, square, and pulse waves and either one- or two-octave tracking.

Over in the mixer section, there are separate knobs for each oscillator, the sub-oscillator, and a switchable knob that does triple duty for blending in a ring-mod signal, white noise, or—yes!—an external input for processing audio through the Bass Station II's filter and amp modules.

The filter section is where the Bass Station II really shines. For starters, it offers fully resonant lowpass, highpass, and bandpass modes, but that's just an appetizer. There's also a slope switch for two-pole or four-pole operation (12dB- or 24dB-per-octave) and a very cool amenity that switches the filter between "Classic" and "Acid" modes. Classic mode is smooth, warm, and transparent. Acid mode is where things get interesting, as it affects the character of the filter resonance, giving it that trademark TB-303 squelch, especially when combined with the filter's super-meaty overdrive. A pair of modulation knobs let you modulate the cutoff via the second envelope or LFO, so all of the standard animation tricks are present and accounted for. As an added bonus, the cutoff frequency knob is quite large—about four times the size of the rest of the knobs on the unit—which is a big plus for realtime performance, especially in a darkened venue.

The dual LFOs and ADSRs are fairly standard, with sync options for both LFOs and a nifty "slew" parameter that softens the edges of the sample-and-hold and square waves quite nicely.

Rounding out the voice architecture is a pair of effect knobs at the end of the chain: Distortion and filter FM (called "Osc Filter Mod" here). The distortion is also analog and really ratchets up the acid-style aspects of the Bass Station II's filter. Finally, a full-featured arpeggiator delivers all of the standard percolating effects and includes a few nifty sequencer-like functions for non-standard riffing.

Sound Quality

So, even with a truckload of synthesis tools on board, there's the issue of overall sonic character. After all, today's analog synth market is brimming with options around the $500 price point. On one hand, you've got synths that ooze character, like Arturia's MiniBrute and Korg's new MS-20 Mini. At the other end of the spectrum are instruments with a smoother feel, like Dave Smith's Mopho series. So where does the Bass Station II fit in?

The first thing I noticed when comparing the Bass Station II to the other analog synths in my arsenal is that it reminded me of a vintage Roland keyboard. When the filter is set to lowpass and Classic modes, the overall vibe was reminiscent of the original Junos and Jupiters. It was definitely on the smooth and creamy side, which would sit nicely in a mix without sounding awkward or dominating. Even with the overdrive knob turned up, there was a transparent quality to the sound.

Things get a whole lot different upon switching the filter to Acid mode and cranking up the analog distortion effect at the end of the chain. This beast cuts beautifully through a mix, commanding center stage while still leaving room for other parts in your track. For musicians looking to dive into analog while remaining in familiar sonic territory, the Bass Station II is a fantastic choice.

What's more, the "Bass Station" moniker is a total misnomer—in a good way. Sure, you can use it for chunky bass and 303 emulations. This is bolstered all the more by its sub-oscillator, which adds a lot of girth, especially in sine wave mode. But this synth is so much more than a bass instrument. It's fantastic at soaring festival leads and quirky techno riffs. In fact, it's just as good at those as it is at bass.

The only caveat to all of this sonic goodness is that there are so many parameters that Novation had to forego the standard one-knob-per-function approach to analog, relying on switches to toggle between multiple oscillators, envelopes, and LFOs. In addition, a smattering of more esoteric parameters are accessed using a function switch combined with keys on the keyboard itself. Granted, this isn't a huge issue, and numerous other synths—notably Dave Smith's Mopho line—take a similar approach. But when you're caught up in a programming frenzy, it feels like a tiny speed bump on a stretch of clear highway.

Conclusions

The Novation Bass Station II is a stellar analog synth that packs a ton of sound into a small footprint at a truly affordable price. I highly recommend it if you're looking to go true analog for the first time—or if you'd like to add another color to a growing collection of desktop analog goodness. Plus, the fact that its external input allows you to process any kind of audio is a huge plus for DAW users who want to fatten up recorded tracks with analog lushness, making it a perfect companion for bedroom producers looking to expand their laptop-based studios. Overall, its value for the money makes it a Key Buy winner.

Bottom Line

If you're familiar with the original Bass Station, it's back with a vengeance. If you're not, this is an excellent and affordable entry into having a real analog synth on your desktop.

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▸ Original audio examples.

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REFX NEXUS 2

BY JIM AIKIN

IF YOU NEED QUICK ACCESS TO HUNDREDS OF AWESOME SOUNDS FOR YOUR electronic dance music set, you won't want to miss Nexus 2. This VST/AU plug-in welds a serious sound library to a smart set of features.

Overview

The heart of Nexus is a large sample library: 3.8GB on disc, in a compressed format that makes it equivalent to 6GB of data. This library can be augmented with a hefty list of add-ons. The idea behind Nexus is that you probably don't want to spend endless hours twiddling parameters and getting cross-eyed staring at an owner's manual thick enough to choke a horse. The result: This synth is not fully user-programmable. To be sure, it's not just a preset machine: You can do a lot to the factory sounds, from editing the rhythm of the trance gate and customizing the effects to adding wicked filter sweeps. But the deepest level of voicing is tucked away in the guts of the machine, with no user access.

One important reason for this design decision is to keep the CPU usage down. The raw waveforms aren't necessarily simple—some include their own sampled modulations. We're told that some well-known vintage hardware instruments have been sampled into the Nexus, though ReFX hasn't said exactly which instruments are represented.

Front Panel

Nexus looks a bit like a hardware workstation keyboard from ten years ago—minus the keyboard, of course. Arrayed across the front panel are 28 knobs that you can assign to hardware MIDI controls and then grab and twist in performance. These knobs can also be automated in the host sequencer.

In the center of the panel is a large "LCD" containing multiple edit pages. The eight main pages are accessed by the buttons along the left and right sides; some have multiple sub-pages. The parameters in the LCD are intended for "set-it-and-forget-it" sound design, and can't be automated, although some can be modulated by routing MIDI messages through the modulation matrix.

Snap Judgment

PROS Huge sound library with cutting-edge dance sounds. Stylish trance gate, filter sweeps, and arpeggiator are ready to go. Many optional expansion sound packs.

CONS Not fully programmable. Key velocity not available as a programmable modulation source.

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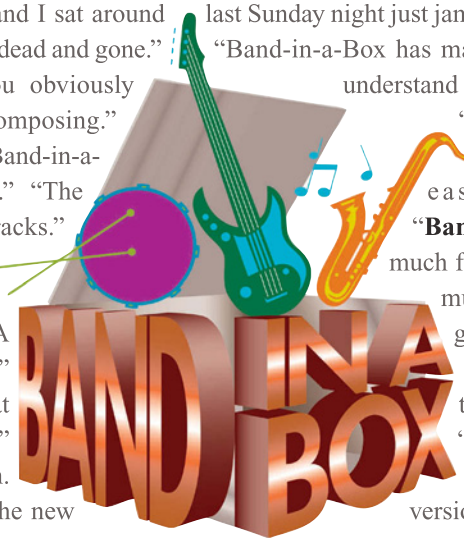

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The knobs on the left are for filter parameters: cutoff, resonance, envelope amount, and the envelope's ADSR controls. Those on the right adjust the amplitude, again including the envelope. These are all macro controls, which offset the values stored in the voice for all of the sound layers at once.

Along the bottom are a master filter, stereo delay, and reverb. The latter are not the only effects in Nexus, they're just the ones that have knobs. The master filter has lowpass, highpass, bandpass, and notch modes. It's essential for hands-on filter sweeps, because the filters within the layers are not user-programmable, other than with the offset knobs. If the filters in the voice are all lowpass and you happen to need a highpass sweep, the master filter will do the job nicely.

Sound Library

The Nexus 2 preset library leans overwhelmingly in the direction of dance music. Yes, there's a category called Classical in the browser, but when you find a patch called "Guitar Fuzz" in the Classical list, well, enough said. In all categories, the presets are big, brash, and aggressive. Even the three "Ballad EPiano" presets are bold and bright—you won't find an authentic vintage Rhodes here. To be fair, though, the Fantasy and Dream category have a few rich pads that would layer well into a mellow track.

Slightly more than a thousand presets are intelligently grouped into categories, including Arpeggios, Bass, Dance Leads, Epic Pads, Gated Pads, Piano, Voice, Textures and FX, and so on. A few are drum loops, and in the Splits and Sequences category you'll find some gig splits with drums and bass in the left hand and a lead tone in the right hand. Scrolling through the presets in the "virtual LCD" is easy—there's no pop-up file dialog box to wrestle with. After editing, you can save your new patch, and it will show up in the category right along with the factory presets. Creating new sounds from scratch is not possible, however.

Most of the presets map filter cutoff to the modulation wheel, either raising it or lowering it. This makes sense for on-the-fly mixing, but with the lead synth presets, you'll have to program mod wheel vibrato yourself. Fortunately, this is dead easy to do.

The biggest hassle with the Nexus sound library will probably be getting familiar with its riches, and that's a good problem to have. ReFX offers numerous expansion libraries (more than 60, and the list is still growing) for download, so there'll always be more to discover. Be careful not to max out your credit card: A fully loaded Nexus with all of the expansion libraries will set you back more than $3,000.

Voice Features

A Nexus preset can contain up to eight layers, each with its own oscillator, filter, envelopes, and possibly other elements such as layer effects. The factory presets have four layers at most, but some of the expansion libraries use eight, and shortly we'll be seeing new libraries with up to 16 layers. Your control over what's programmed into the layers is very limited. The knobs give you offsets for the filter and amplifier, as noted earlier. In addition, you can switch layers off, transpose and detune them, and change their volume and panning individually. You can't choose a different waveform or filter type for a layer, however.

The important user-programmable features are the effects, modulation routings, arpeggiator, and trance gate. In addition to the delay and reverb, you have four effects processors to play with, any of which can be a chorus, flanger, phaser, degrader, distortion, ring modulator, talkbox, and so on. Two of these effects are inserted before the master reverb and delay, and two of them are after, so there's quite a range of processing options. Also on tap are a limiter and a four-band parametric EQ.

Two LFOs and ten modulation routings are provided, plus vibrato. The list of mod destinations is extensive—not only the effect parameters but a number of layer parameters, such as filter frequency and resonance and even the speed and depth of any internal LFOs that happen to be programmed into a given layer. Since the only way to know what's going on in a layer is to solo it and listen, finding useful modulation routings is a bit hit-or-miss.

MIDI control change messages can be used as modulation sources, and there are also eight inputs for host automation data. The big omission from the modulation source list is MIDI velocity. Most of the presets are programmed with velocity response for both loudness and filter cutoff, but if you happen to want more velocity response from the filter, or if you happen to want to route velocity to a different parameter, you're out of luck. It turns out there's a reason for this limitation: All of the modulations are global to the sound layer. Velocity modulation would be per individual voice, and Nexus doesn't allow user programming of per-voice modulations.

The arpeggiator and trance gate can have up to 32 steps. The gate is especially sweet: It's stereo, and the left and right sides can have different rhythms. It also has delay and fade-in parameters, for those crowd-pleasing lifts. The arpeggiator steps can be transposed up or down in half-steps, the step gate length is adjustable, and each step can be given a velocity value. Both the arpeggiator and the trance gate have their own libraries of presets that you can load from a menu. With a setup like this, pulse-pounding rhythms are a slam-dunk.

Conclusions

Going back to 1980, the folks at Sequential Circuits noted that the majority of the Prophet-5 synths that came in for repair still had the original factory presets intact. (That was the rumor, at least.) It seemed clear that many synthesizer owners didn't feel much need to create their own sounds. That's probably even truer of today's soft synths, given the huge sound libraries that come with them.

ReFX is betting that you want to get your hands on a huge batch of electrifying sounds with a minimum of hassle, and probably won't need to do much to customize them. That's what Nexus 2 is all about. To be sure, it's not the only software synth that ships with a large sound library, but the clear focus on a singular pop music style (EDM) and the huge list of optional library expansions are not so common.

Nexus2 will have a limited appeal to those who prefer gentle, dreamy tones, and it's not a heaven for sound design programmers. But if you're looking for unbeatable power and excitement, step right up.

Bottom Line

If you're doing electronic dance music and crave hundreds of new production-ready sounds, you're going to love Nexus 2.

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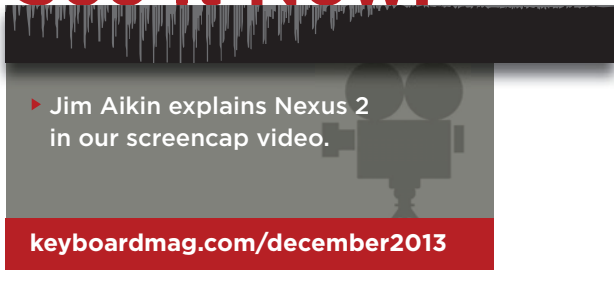

Jim Aikin explains Nexus 2 in our screencap video.

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APPLIED ACOUSTICS SYSTEMS

Lounge Lizard EP-4

BY MARTY CUTLER

Snap Judgment

PROS Dynamic and realistic electric pianos. Greatly improved factory presets. Addition of EQ and compression benefits the sound significantly. Compact, improved user interface. 64-bit support.

CONS Not backward compatible with earlier Lounge Lizard patch libraries. Topology button and tape-delay effect are missing.

EVEN STATE-OF-THE-ART SAMPLING SOMETIMES LEAVES AN IMPRESSION OF something other than the real deal. Such has been my experience with many sampled electric pianos—something about the response lacks the finger-to-sound connection I'm after. Physical modeling, by contrast, is better for realistic, continuous response when emulating acoustic instruments, but when it comes to vintage keyboards, I'm often left with a lack of the body that samples capture so easily. However, with Applied Acoustics Systems' (AAS) modeling-based electric piano, Lounge Lizard EP-3, I could always achieve some remarkably faithful instruments by tweaking the factory patches—in terms of both timbre and responsiveness. Now comes EP-4, with 64-bit operation, a redesigned user interface, new patches designed by some luminaries in the field, and new effects. Does it hit the sweet spot for software electric pianos? Let's find out.

Overview and Interface

As with EP-3, EP-4 offers standalone, AU, VST, and RTAS (and soon AAX) versions. Installing EP-4 is quick and painless, relying on a challenge-and-response routine for authorization. I was up and running in about a minute.

If you're a longtime user of Lounge Lizard, you may be temporarily befuddled by the new graphics, but soon, you'll appreciate the more streamlined view, especially in the area of bank and patch management. These show up in a smaller, expandable area at the upper left, rather than the long sidebar and tree-like hierarchy of the older version. Basic tweaks for effects and modeling parameters are front and center and within easy reach on the main panel of the instrument, with more detailed parameters on separate edit pages. Every knob I right-clicked on was assignable to a knob or slider on my controller.

The "Character" button appears among these controls, and this incorporates preset signal chains, including preamp, cabinet, speaker, and mic

Fig. 1. The Edit page lets you dial in anything from accurate renditions of Rhodes-type pianos and Wurlies to pads and more atmospheric sounds.

setups. Rather than detail individual parameters, you move a single knob to one of five preset positions. The results were subtle—especially in some of the more effect-intensive patches.

Editing

I was eager to move my own EP-3 patches over to the new version, as my upgrade to 64-bit host programs made my old copy of EP-3 unusable. To my dismay, EP-4 wouldn't load the patches. A quick check with AAS confirmed that EP-4 is not backward compatible, so I set out to replicate my old favorites parameter by parameter.

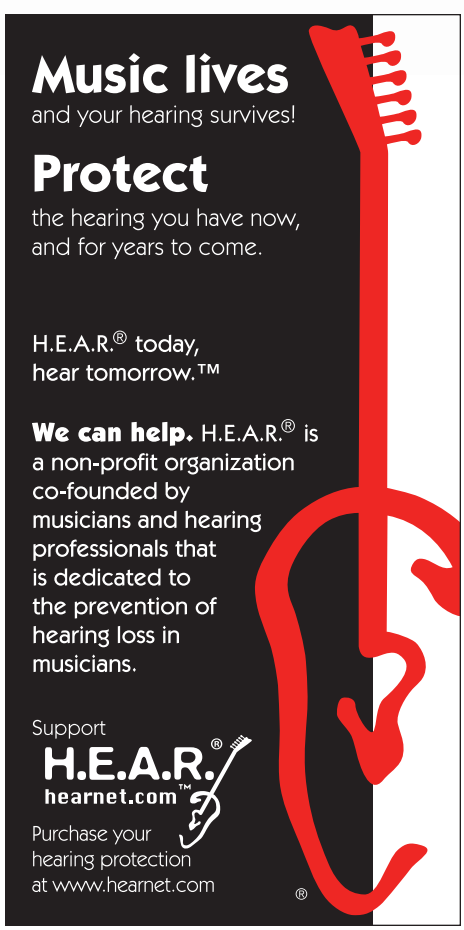
Editing in EP-4 didn't seem to be much different from the previous version, so I launched both versions in standalone mode and tried to replicate the values of a lush, phased Rhodes patch I'd created to mimic the one on Steely Dan's *Gaucho*. It seemed simple enough: move the dials to match the settings of the original, get the effects in line, and set up the same amounts and levels. Although the parameters seemed the same, the ratios were apparently different given the same knob positions, so I resorted to my ears. Ultimately, I got close, and with some more tweaking I'll get closer.

EP-4's engine dishes up plenty of programming latitude. The parameters group into Hammer, Fork, Pickup, Damper, and Tremolo sections, but these are not isolated parameters. For instance, the Force knob affects the hammer's impact on the fork, and when this knob is zeroed, EP-4 produces no sound whatsoever. You can alter the stiffness of the hammer, force, and noise with respect to velocity and keyboard tracking, all of which helps create as realistic (or surrealistic) a patch as you could want (see **Figure 1**).

Presumably, the first place you might want to point your editing mouse is the Pickup selector knob. You can select Rhodes or Wurlitzer; whether you really sound like a Rhodes Suitcase or a Wurly A200 is up to adjustments you make on the tines, forks, tone bar, pickup symmetry, and the rest. Maxing out the hammer stiffness setting along with the fork output produces some great ring-modulation effects.

Effects

Gone is the "Topology" button, which let you reconfigure the signal flow of the effects in parallel or in series, feeding the reverb, however, you



can load the two middle effects slots in any order you choose. Reverb is fixed as the last processor in the chain, and the new EQ (high- and low-shelving) and compressor (configurable pre- or post-EQ) are first. The EQ and compressor are a welcome addition to the effects chain, and judicious compression adds appreciable heft and punch. The two middle effects in the chain offer a choice of delay, distortion, phaser, chorus, wah, auto-wah, and notch filter, which—in conjunction with tremolo settings—is great at simulating old-school phase-shifter effects *a la* Josef Zawinul and Don Grolnick. The tap delay that was in EP-3 appears to be missing in action, but although ping-pong delay is no longer in the menu, moving the pan control to the right brings in the ping-pong effect. Naturally, all time-based effects can sync to MIDI clock.

Patches

The factory patch library is greatly improved over earlier versions thanks to the efforts of keyboard and programming wizards such as Jerry Kovarsky, Christian Haiten, Thiago Pinheiro, and others. Most of the Classic Tracks bank survives intact from earlier versions, and patches like "4AM," "Logical Song," and "Riders on the Storm" will easily get you through an evening of covers. Kovarsky's "Bfly Rhodes" will make you reach for Herbie Hancock's *Thrust* album. You'll find a bunch of useful sounds in the Experimental bank; although their electric piano origins shine through, they present some very useful bass and bell-like timbres. "Meditation Bells," for example, was close enough to that lush, glassy, Lyle Mays-style sound (from his *Street Dreams* album) for me to dive into another programming session soon.

Conclusions

As much as I loved Lounge Lizard EP-3, version 4 is a significant improvement. The added EQ and compressor sections are a big bonus, and the factory library is a strong demo of the instrument's capabilities. The dynamic response is continuous and smooth, and with the right controller, goes a long way towards a realistic playing experience. Unless you understand the electromechanical processes of vintage electric pianos, you may initially be at sea when programming a specific sound. That said, the PDF documentation is very helpful and there's no harm in poking around the parameters as there's a factory reset procedure built in. I lament that there's no direct way to bring patches from earlier versions into EP-4, but with a little diligence they can be reconstructed, as the Classic Tracks bank demonstrates. Be sure to download the demo version at the AAS website to check things out for yourself. It's fully functional except for the sound being interrupted every few seconds—but your old Wurly is probably doing that by now, too! ♫

Bottom Line

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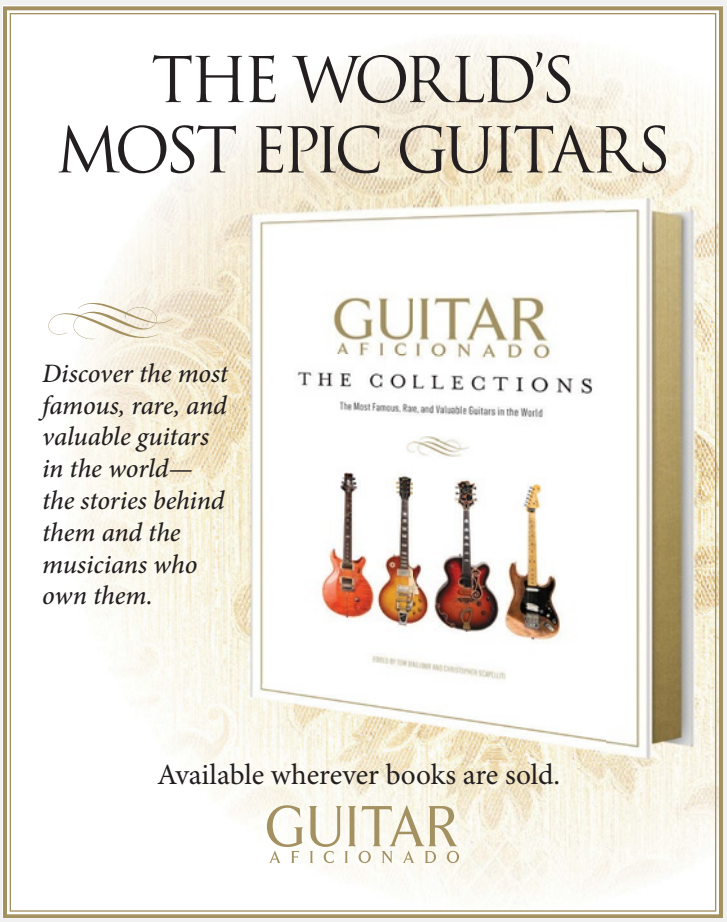

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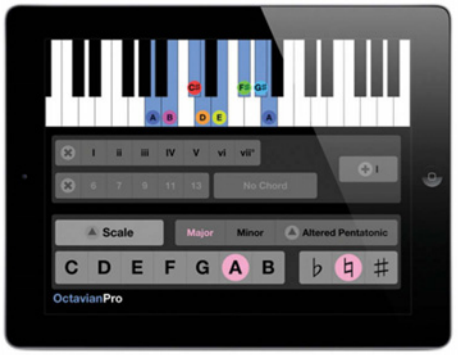

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AKAI iMPC

BY FRANCIS PRÈVE

Keyboard K KEYBUY AWARD

THERE ARE THREE DRUM MACHINES THAT CAN LEGITIMATELY BE CALLED "iconic:" the Roland TR-808, Roger Linn's original LM-1, and the Akai MPC series—the first models of which were designed by Roger Linn himself. While the TR-808's utterly unique analog sound and definitive step-sequencing interface is the source of its enduring status, the MPC's luster comes from a more ephemeral place: a groundbreaking approach to composition combined with an innately groovy feel.

When it was first released in late 2012, iMPC made serious waves, thanks to Retronyms' (the co-developer of the app) slavish attention to detail in recreating the feel of the original. Since then, iMPC has grown into a full-featured production environment that, like its hardware brethren, is tailor-made for making hip-hop and R&B music.

Much like the current crop of MPC hardware, iMPC features four 16-pad "tracks" for creating your grooves. The most common approach is to use one track for drums and the other three for sample-based instrumentation. Akai clearly knows this, since many of its massive collection of factory drum kits also include related bass and instrument presets.

Feature-wise, iMPC includes many of the same tools that make the hardware version so useful. You can tap any pad and then assign it to all 16 pads for playing precise variations in tuning, velocity, length/duration, and filtering. There's also a slider for users who prefer a more tactile approach.

The MPCs' legendary swing is in full effect here and to my ears, it has an identical feel to that of the original hardware. As for the other quantization options, they range from eighth-notes to 32nd-notes, with triplet versions for each. This is more than enough for most pop applications.

Sampling with iMPC is a breeze. You can use the iPad's built-in mic or access any of the tracks stored in your iPad's music collection via a clever turntable interface that actually allows you to *scratch* your audio as you record it. I honestly had a blast with this and it's a fantastic inclusion. From there you can adjust start and end points to get your sample just right.

Also on board are three basic effects: bit-crushing, delay, and compression. The first two can be applied globally to any of the four tracks, while compression/limiting is tied to the master outs.

As for iOS amenities, the iMPC is packed with them, including Korg's WIST wireless sync tools, AudioCopy, AudioPaste, Retronyms' Tabletop interface, and iOS 7's new Inter-App audio protocol. There are also a ton of social media tools including in-app publishing to SoundCloud, Facebook, Twitter, and Tumblr. As iPad amenities go, this app is fully compliant. Finally, there's an iPhone version as well, for those who haven't yet snagged a tablet.

For five bucks, iMPC is a must-have iPad app for musicians of all types—if only for bragging rights. This is a total Key Buy.

Snap Judgment

PROS Faithful recreation of the MPC vibe. Massive selection of samples. User sampling includes the ability to scratch your iTunes files like vinyl. Built-in effects and compression. Also available for iPhone.

CONS Strictly patterns—no song-length creation tools. No editing beyond quantize and erase. Version 1.3 no longer supports the original iPad.

Bottom Line

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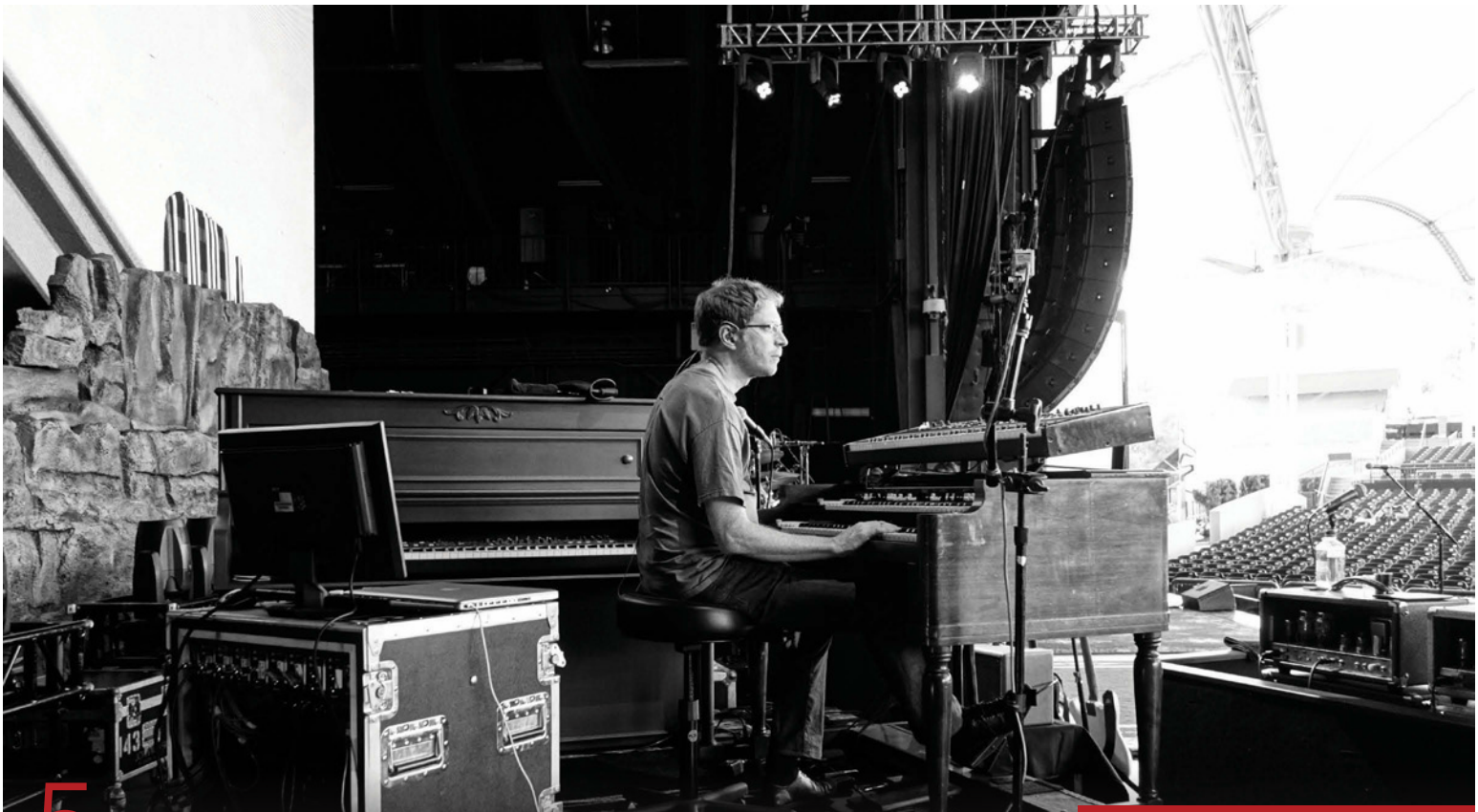

ALEX ALVAREZ

5 THINGS I'VE LEARNED ABOUT Getting Better Gigs

BY ANDY BURTON

New York-based keyboardist **Andy Burton** has toured with artists like Rufus Wainwright, Curtis Stigers, and Ian Hunter. He is currently performing with singer/songwriter John Mayer around the globe.

I'VE BEEN PLAYING IN BANDS SINCE I WAS IN JUNIOR HIGH SCHOOL. AND whether I'm playing to ten people or ten thousand, for me the goal has always been the same: to get better musically and to get better gigs! Here are five things I've learned along the way.

1. Believing Is Step One

I started out as a philosophy major at Harvard, but switched to a major in electronic music when I decided to follow my heart. Soon I was working with tape loops and Buchla synthesizers and having the time of my life. Believing that I could realize my musical dreams was the first step in actualizing them. To quote that well known John Mayer song, "There's no such thing as the real world." If music is in your blood, don't let anyone tell you a career in it is impossible.

2. Train Like an Athlete

I had a great deal of early classical training, from piano lessons at the Manhattan School of Music as a child to all-around musical immersion courtesy of other members of my family who are also musicians. I credit a great deal of my abilities to my early and continued musical training. Think like an athlete—develop a training routine and stick to it.

3. Push Your Musical Boundaries

I became the musical director for a revue in New York called "The Beat Goes On," where a house band with 20 singers would do a tribute to a particular era. We recreated things like music from the British Invasion and Phil Spector's "wall of sound" approach. Having that gig not only introduced me to countless musicians on the New York scene (who later recommended me for some of my biggest gigs), it also taught me new sounds and styles that are now part of my sonic palette. Taking gigs that are outside of your normal box can be a game-changer, musically and networking-wise.

4. Take the Gigs that Excite You

I quit a day job to take a gig that paid the same amount of money, but only for one month. I knew I would have nothing left after four weeks, but the music excited me so much that I threw caution to the wind. By doing so, more gigs came rolling in. Bet on yourself and ultimately you *will* win.

5. Always Be Improving

Always increase your music collection and your understanding of music history. It's never too late to get better on your instrument. When in doubt, go back to Bach and James Booker!

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